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DAMAGE TOLERANT DESIGN HANDBOOK



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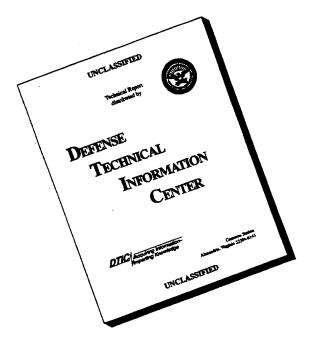
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This report presents a compilation of mechanical property data that are useful for damage tolerant design and analyses. The data of this handbook combines the old data that were previously presented in MCIC-HB-OIR (Damage Tolerant Design Handbook, December 1983) and more recent data that were collected from various sources. The fracture toughness, crack growth, R-curve, sustained load and threshold data are for alloy and stainless steels, nickel based super alloys, titanium alloys and aluminum alloys.

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Table of Contents

VOLUME 1

Chapter			Page
1	Han	dbook Organization and Content	. 1-1
	1.0	Overview	. 1-1
	1.1	Organization	. 1-2
	1.2	Data Ordering and Abbreviations 1.2.1 Sorting Order 1.2.2 Abbreviations	. 1-5
	1.3	Material Chapter Summaries	1-12
		1.3.3 Plane Stress and Transitional Fracture Material Data Summary	
		1.3.4 Fatigue Crack Growth Rate Material Data Summary 1.3.5 Stress Corrosion Cracking Threshold Material Data Summary	
	1.4	Alloy Section Summaries	1-21
	1.5	Alloy Fracture Toughness Subsection Formats 1.5.1 Plane Strain Fracture Toughness Data 1.5.2 Plane Stress Fracture Toughness Data 1.5.3 R-Curve Data	1-25 1-25
	1.6	Subcritical Crack Growth Subsection Formats 1.6.1 Fatigue Crack Growth Rate Data 1.6.2 Sustained Load Crack Growth Rate 1.6.3 Stress Corrosion Cracking Threshold	1-31 1-36
2	Meth	ods of Calculation	. 2-1
	2.0	Overview	. 2-1 . 2-3

	2.1	Plane-Strain Fracture Toughness (K_{Ic}) 2-12
	2.2	Critical Plane Stress Fracture Toughness
٠		Toughness
		2.2.2 Plane Stress and Transitional Fracture Toughness Testing
	2.3	The Apparent Fracture Toughness 2-26
	2.4	R-Curve (K_R Versus Δa_{eff})
	2.5	Fatigue Crack Growth Rate2-302.5.1 Fatigue Crack Growth Behavior2-302.5.2 Data Acceptance Criteria2-322.5.3 Data Reduction Procedures2-332.5.4 Data Reporting Procedures2-35
	2.6	Sustained-Load Crack Growth Rates2-382.6.1 Sustained-Load Crack Growth Behavior2-382.6.2 Data Acceptance Criteria2-402.6.3 Data Reduction Procedures2-402.6.4 Data Reporting Procedures2-40
	2.7	$ \begin{array}{llllllllllllllllllllllllllllllllllll$
3	Alloy	Steel Sections 3-1
	3.0	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8	10Ni Steel 3-39 12-9-2(MAR) 3-48 12Ni-5Cr-3Mo 3-51 18Ni(180)(MAR) 3-52 18Ni(200)(MAR) 3-53 18Ni(250) 3-56 18Ni(250)(MAR) 3-59 18Ni(280)(MAR) 3-67 18Ni(300) 3-68
	3.9 3.10	18Ni(300)(MAR)

	3.11	18Ni(350)	3-88
	3.12	18Ni(350)(MAR)	
	3.13	300M	
	3.14	300M(AM)	
	3.15	300M(VAR)	
	3.16	300M(VM)	
	3.17	4140	
	3.18	4330V	
	3.19	4330V(MOD)	
	3.20	4340	
	3.21	4340(AM)	
	3.22	4340(DH)	
	3.23	4340(EFM)	
	3.24	4340(MOD)	
	3.25	4340(VAR)	
	3.26	4340V	
	3.27	A286	
	3.28	AF1410	
	3.29	AF1410(VIM-VAR)	
	3.30	D6AC	
	3.31	H11	
	3.32	HP9-420	
	3.33	HP9-420(CEVM)	
	3.34	HP9-425(VAR)	3-354
	3.35	HP9-430	
	3.36	HP9-445	3-423
	3.37	HY-150	3-424
	3.38	HY-180	3-425
	3.39	HY-80	
	3.40	HY-TUF	
	3.41	Alloy Steel References	3-433
4	Stain.	less Steel Sections	4-1
	4.0	Stainless Steel Material Summerica	4.0
	4.0	Stainless Steel Material Summaries	
		4.0.2 K_{Ic} Summary	4-9
		4.0.5 K _{Iscc} Summary	
		4.0.0 IXIsco Dummary	. 4-10
	4.1	15-5PH	. 4-17
	4.2	15-5PH(AM)	
	4.3	15-5PH(VM)	
	4.4	17-4PH	
	4.5	17-7PH	
	4.6	21-6-9 NI40	
	4.7	304	
	4.8	316	

	4.9	347
	4.10	
	4.11	AFC 77 4-98
	4.12	
	4.13	AM 355
	4.14	AM 362
	4.15	AM 364
	4.16	CUSTOM 455
	4.17	PH13-8Mo
	4.18	PH14-8Mo
	4.19	PH15-7Mo
	4.20	Stainless Steel References
VOLUN	Æ 2	
5	Nick	el Based Super Alloys Sections
J	2 12022	or baboa bapor randy bootstand in the transfer of the transfer
	5.0	Nickel Based Super Alloys Material Summaries 5-3
	•	5.0.1 Available Data Summary 5-3
		5.0.2 K _{Ic} Summary
		5.0.3 K. Summary (Buckling not Constrained) 5-7
		5.0.4 FCGR at Defined ΔK Levels 5-8
		5.0.5 K _{Iscc} Summary
	5.1	ASTROLOY 901 5-13
	5.2	ASTROLOY P/M-H
	5.3	ASTROLOY P/M-W
	5.4	IN100 5-28
	5.5	IN100 P/M-G
	5.6	INCOLOY 901
	5.7	INCONEL 600 5-56
	5.8	INCONEL 625 5-63
	5.9	INCONEL 718 5-68
	5.10 5.11	NASA IIB-7 P/M
	5.11 5.12	RENE 95 (H&F)
		WASPALOY
	5.14	Nickel Based Super Alloys Reference
6	Titan	ium Alloys Sections 6-1
		•
	6.0	Titanium Alloys Material Summaries 6-3
		6.0.1 Available Data 6-3
		6.0.2 K _{Ic} Summary
		6.0.3.1 K _c Summary (Buckling not Constrained) 6-18
		6.0.3.2 K _c Summary (Buckling Constrained) 6-19
		6.0.4 FCGR at Defined ΔK Levels 6-20 6.0.5 K. Summary 6-35
		nun n. aummary 6.35

	6.1	BETA 6-38
	6.2	BETA C 6-39
	6.3	BETA III
	6.4	BETA Ti 6-59
	6.5	CORONA 5
	6.6	IMI-834
	6.7	Ti-*
	6.8	Ti-10-2-3
	6.9	Ti-4Al-3Mo-1V
	6.10	Ti-5-2.5 ELI
	6.11	Ti-5Al-2.5Sn
	6.12	Ti-6-2-2-2
	6.13	Ti-6-2-4-2 6-134
	6.14	Ti-6-2-4-2 ELI
	6.15	Ti-6-2-4-6
(Ti-6Al-4V 6-169
(6.17	Ti-6Al-4V ELI
(Ti-6Al-6V-2Sn
(Ti-6Al-6V-2.5Sn
(Ti-6Al2Sn4Zr6Mo
(Ti-8Al-1Mo-1V
. (Ti-Mo8V2Fe3Al
		Ti-5Al2.5Sn ELI
(Ti-6Al6V2Sn ELI
(Titanium Alloys References
VOLUME	E 3	
7	Alumi	num 2000/6000 Series Alloys Sections
7	7.0	Aluminum 2000/6000 Series Material Summaries 7-3
		7.0.1 Available Data
		7.0.2 K _{Ic} Summary
		7.0.3.1 K _c Summary (Buckling not Constrained) 7-10
		7.0.3.2 K Summary (Buckling Constrained) 7-12
		7.0.4 FCGR at Defined ΔK Levels
	į	7.0.5 K _{Isc} Summary
7	7.1	2014 7-27
7	7.2	2020 7-65
7	7.3	2020 (ALCLAD)
		2021 7-79
		2024 7-82
		2024 (ALCLAD)
		2048
		2091 7-416
7	7.9	$2124 \ldots \ldots 7-451$

	7.10	2214
	7.11	2219
	7.12	2324
	7.13	2419
	7.14	2618
	7.15	6061
	7.16	A201
	7.17	A357
	7.18	AL905XL
	7.19	IN905XL
A	7.20	Aluminum 2000/6000 Series References
VOLUM	E 4	
8	Alum	inum 7000/8000 Series Alloys Sections
	8.0	Aluminum 7000/8000 Series Material Summaries 8-3
	0.0	8.0.1 Available Data
		8.0.2 K _{Ic} Summary
		8.0.3.1 K. Summary (Buckling not Constrained) 8-16
		8.0.3.2 K. Summary (Buckling Constrained) 8-19
		8.0.4 FCGR at Defined ΔK Levels
		8.0.5 K _{Iscc} Summary
	8.1	7001
	8.2	7005
	8.3	7007
	8.4	7010
	8.5	7039
	8.6	7049
	8.7	7050
	8.8	7050 (ALCLAD)
	8.9	7075
	8.10	7075 (ALCLAD)
VOLUM	E 5	
	8.11	7079
	8.12	7079 (ALCLAD)
	8.13	7080
	8.14	7149
	8.15	7150
		7175 8-877
	8.17	7178
		7178 (ALCLAD)
		7475 8-1020
		747F (ALCIAD)

8.21	8009	8-1323
8.22	8090	8-1328
8.23	X7090	8-1344
8.24	X7091	8-1348
8.25	Aluminum 7000/8000 Series References	8-1354

Foreword

This report summarizes the results of a damage tolerant, material property data collection and reporting program conducted under USAF Contract F33615-91-C-5610. The work was sponsored by the Materials Directorate of Wright Laboratory with Mr. Jack Coate of the Systems Support Division serving as the project monitor. The technical effort was conducted between June 1991 and January 1994. The work was performed by the University of Dayton Research Institute under the general supervision of Dr. Joseph P. Gallagher with Dr. Alan P. Berens serving as Principal Investigator.

This final report comprises eight chapters which are presented in five volumes as follows:

VOLUME	CHAPTER	DESCRIPTION
1	1	Handbook organization and content
	2	Methods of calculation
	3	Alloy Steels
	4	Stainless Steels
2	5	Nickel Based Super Alloys
	6	Titanium Alloys
3	7	Aluminum 2000/6000 Series Alloys
4 & 5	8	Aluminum 7000/8000 Series Alloys

A detailed listing of the materials represented in the Handbook is contained in the preceding Table of Contents. In the body of the Handbook, the pages are numbered within chapters and the relevant portion of the table of contents is repeated at the beginning of each chapter.

CHAPTER 7 ALUMINUM 2000/6000 SERIES ALLOYS SECTIONS

7.0	Aluminum 2000/6000 Series Material Summaries 7-3
7.0.1	Available Data 7-3
7.0.2	K _{Ic} Summary 7-8
7.0.3.1	K. Summary (Buckling not Constrained) 7-10
7.0.3.2	K. Summary (Buckling Constrained) 7-12
7.0.4	FCGR at Defined Δ K Levels 7-13
7.0.5	K _{lecc} Summary 7-25
7.1	2014 7-27
7.2	2020 7-65
7.3	2020 (ALCLAD) 7-78
7.4	2021 7-79
7.5	2024 7-82
7.6	2024 (ALCLAD) 7-378
7.7	2048 7-397
7.8	2091 7-416
7.9	2124 7-451
7.10	2214 7-556
7.11	2219 7-561
7.12	2324 7-654
7.13	2419 7-657
7.14	2618 7-668
7.15	6061 7-674
7.16	A201 7-682
7.17	A357 7-686
7.18	AL905XL 7-691
7.19	IN905XL 7-704
7.20	Aluminum 2000/6000 Series References 7-719

TABLE 7.0.1

Alloy	Condition/ Heat Treatment	Product Form	$ m K_{Ic}$	Ke	R Curve	da/dN	da/dt	KIscc
	T451	Plate					1	
		Sheet		111	-	40		
		Plate		4				
	76	Forging	22			4		1
		Forged Bar	9					
2014		Rolled Bar				4		
	T61	Forging	4					
	T611	Forging	9					
	T651	Plate	62	12			1	
	1652	Forging	28					
		Sheet		19		4		
	7.0	Plate	8					
2020		Extrusion	1					
		Sheet		12				
	1651	Plate	20	33		12		1
2020 (ALCLAD)	тв	Sheet		21				
	181	Plate	8					8
	T81 OVERHEATED WELD	Plate			-			1
2021	T81 REPAIR WELD + AGE WITH 2319 FILLER WIRE	Plate	9					
	T81 REPAIRED WELD AGED 16HR 325F HEAT AFFECTED ZONE	Plate						1

Alloy	Condition/ Heat Treatment	Product Form	K _{Ie}	Ke	R Curve	da/dN	da/dt	Klacc
	T81 REPAIRED WELD AGED 16HR 325F WELD CENTER LINE	Plate						1
	T81 REPAIRED WELD AGED 1611R 325F WELD FUSION LINE	Plate						1
	T81 WELD + AGE WITH 2319 FILLER WIRE	Plate	6					
2021 (Cont'd)	T81 WELDED AGED 16HR 325F FUSION LINE	Plate						1
	T81 WELDED AGED 16HR 325F HEAT AFFECTED ZONE	Plate						1
	T81 WELDED AGED 1611R 325F WELD CENTER LINE	Plate						1
	T8151	Plate	8					
		Unspecified				89		
	T.	Sheet		142	9	57		
		Plate		16		8		
		Sheet			7	6		
		Plate	18	19	26	64	9	7
·	1351	Extrusion	12					
2024		Forged Bar	8					
	T3511	Extrusion	8			18		
	T362	Forging						1
	T36	Sheet		4				
		Sheet		48				
	14	Forging					1	
	T42	Plate				4		

Alloy	Condition/ Heat Treatment	Product Form	K _{le}	K	R Curve	da/dN	da/dt	K _{Iscc}
	T6	Sheet		6				
	162	Sheet				16		
		Sheet		5				
	(PS) Z9.I.	Plate			9			
		Sheet		5				
	162 (WQ)	Plate			9			
	· Code	Sheet		64		41		
2024	181	Plate			9			
(Cont'd)		Sheet		30				
	1861	Plate	204	42		74		L
	18610	Extrusion	6					
	18611	Extrusion	9					
	T852	Forging	69			91		12
	T86	Sheet		30				
	• v Odd	Sheet				51		
	1861	Plate				6		
	Т3	Sheet		295		9		
2024 (ALCLAD)	T86	Sheet		4				
2048	T851	Plate	64			15		
	173	Sheet			9	2		
2091	T361	Plate			8	2		
	176	Forging				2		

Alloy	Condition/ Heat Treatment	Product Form	K _{Ie}	Ke	R Curve	da/dN	da/dt	K _{Iscc}
		Sheet .				8		
2091	18 Z/6F 1ZHR3	Plate				80		
(Cont'd)	T81 335F 32HRS	Sheet				2		
	T851 335F 16HRS	Plate				8		
	T351 (417)	Plate	1					
	T851	Plate	1138	44	10	69		8
2124	T851 (417)	Plate	164					
	T851 (SP)	Plate	27					
	T651	Plate	25					
2214	T651 (417)	Plate	46					
	T37	Plate					1	3
	T81	Sheet		Þ				
		Unapecified				6		
	* # 552	Sheet		23				
	1991	Plate	151	24		72		11
8		Forging	112					
2219	T8511	Extruded Bar				9		
		Forging	142			91		
	1852	Billet				1		
- 13	r o e	Sheet		76				
	187	Plate	29	24				3
	T87-300F 100HRS	Plate	2					

TABLE 7.0.1 (CONCLUDED)

Alloy	Condition/ Heat Treatment	Product Form	\mathbf{K}_{lc}	К	R Curve	da/dN	da/dt	Klscc
2324	139	Plate				8		
2419	1861	Plate	95		·	2		
	161	Sheet		6				
2618	T651	Plate	16					
	T81	Sheet				2		
	T6	Sheet		22				5
		Plate	13	4		1		3
6061	1991.	Forged Bar	3					
	T652	Forging	1					2
A201	ΥT	Casting				20		
	TG	Caeting				16		
A357	T8; SOL, HEAT TREAT 1010F 24HRS; H2O Q AT 160F WITH 9 SEC QUENCH DELAY	Carting				8		
AL905XL	Unspecified	Forging				15		
	Unspecified	Forging				19	·	
IN906XL	850F 2HRS, 665F 2HRS, WARM H20 Q; 230F 24HRS	Forging				2		

TABLE 7.0.2

PLANE STRAIN FRACTURE TOUGHNESS VALUES OF ALUMINUM 2000/6000 SERIES ALLOYS AT ROOM TEMPERATURE

			Range of					K	Le (J	$K_{Ic}~(Ksiar{ u}_{ar{I}ar{D}})$					
Alloy	Condition/	Product	Product					Specimen Orientation	nen	Orient	ation				
•	Heat Treatment	Form	Thickness		Ţ	L-T			Ĥ	T-L			<i>G</i> ₂	S-L	
•			(111.)	Min Spec Thk	E	Mean	Std	Min Spec Thk	E	Mean	Std Dev	Min Spec Thk	ď	Mean	Std Dev
	Š	Forging	0.89-8.00	0.71	2	27.9	8.0	0.25	4	17.4	1.7	0.75	10	16.9	1.9
	40	Forged Bar	4.50	ı	ı	:	:	0.25	2	16.7	9.0	:	i	:	:
2014	T611	Forging	1.00	:	i	ı	;	:	;	:	:	0.75	2	17.8	9.0
	T651	Plate	1.00-5.00	1.00	10	23.3	1.0	1.00	19	21.4	1.2	0.50	2	17.8	0.1
	T652	Forging	2.00-6.00	0.75	12	28.8	3.6	0.75	13	21.9	3.2	0.50	3	18.1	1.4
2020	T651	Plate	1.37	1.00	80	23.0	2.4	1.00	4	17.2	0.3		i		ŀ
	T81	Plate	1.00	0.99	8	27.0	0.5	:	ı	:			:	-	i
2021	T81 REPAIR WELD + AGE WITH 2319 FILLER WIRE	Plate	1.00		i			1.00	9	15.8	0.7	;	!	ı	ı
	T81 WELD + AGE WITH 2319 FILLER WIRE	Plate	1:00	ï	i		I	1.00	6	19.4	2.7	ı	I	ı	1
	a con	Plate	1.00-3.00	1.00	9	33.4	3.9	:	i	ŧ		1	•••		1
	1361	Extrusion	3.00-5.00	1	i			1.60	9	25.0	0.9	ŀ	1	ı	1
	T3511	Extrusion	***	1.20	4	38.0	2.6	:	ŀ	ŀ	-		i	1	i
2024	T851	Plate	0.37-4.00	0.38	99	23.3	2.4	0.38	63	20.7	1.9	ı	1	ı	ı
	18510	Extrusion	2.76-4.50	1.86	ေ	30.4	2.7	2.00	တ	16.6	1.0	1.00	3	16.7	F1
	T8511	Extrusion	3.50	1.00	2	24.1	0.4	1.00	2	16.0	0.0	-	1	1	1
	T862	Forging	2.00-6.00	0.75	24	29.2	5.2	0.75	16	18.9	2.6	0.25	8	16.9	8.0

TABLE 7.0.2 (CONCLUDED)

PLANE STRAIN FRACTURE TOUGHNESS VALUES OF ALUMINUM 2000/6000 SERIES ALLOYS
AT ROOM TEMPERATURE

				·			1	¥	ζ_{Ic} (I	$K_{Ic}~(Ksi\sqrt{in})$					
····	7.57	Decdreet	Range of					Snecin	nen	Snecimen Orientation	ation				
Alloy Heat	Heat Treatment	Form	Thickness		٦	L-T			L	T·L				S·L	
			(in:)	Min Spec Thk	E	Mean	Std	Min Spec Thk	£	Mean	Std	Min Spec Thk	E	Mean	Std Dev
2048	T851	Plate	1.00-4.00	1.00	22	37.9	1.9	1.00	24	30.6	2.5	0.75	18	25.4	1.9
	1851	Plate	0.62-6.00	0.50	364	29.7	2.8	0.50	362	25.1	2.3	0.60	393	21.7	2.1
2124	T851 (417)	Plate	1.57-5.50	0.50	22	28.9	2.8	0.50	28	23.8	2.4	0.50	19	21.3	2.0
	T851 (SP)	Plate	2.00-6.00	0.75	10	27.2	4.7	0.75	7	23.1	2.7	0.75	10	21.4	3.2
	T651	Plate	1.50-2.37	1.00	11	35.3	2.7	1.00	10	31.8	0.9	ï	!		į
2214	T651 (417)	Plate	1.50-3.93	1.50	10	36.0	3.4	1.49	15	29.4	1.8	1.00	2	26.6	1.8
	T861	Plate	1.00-3.25	0.97	48	33.4	2.3	0.75	78	29.7	3.2	0.50	14	23.0	2.4
		Forging	•		ï	1	ì	:	ı	1	ŀ	1.00	85	25.6	3.1
2219	T862	Forging	2.00-7.50	1.50	92	39.2	3.2	1.60	24	27.1	2.2	0.75	69	25.3	3.1
	T87	Plate	1.00-2.00	1.00	9	28.0	3.0	0.97	2	22.0	0.4	1	1	ì	1
at.	T87-300F 100HRS	Plate	1.50	1.47	2	34.8	0.4	ï	ı	ı	ı	1	1	ì	1
2419	T851	Plate	1.75-3.00	1.50	83	42.6	6.3	1.40	23	37.2	4.2	1.00	8	24.8	2.6
2618	T651	Plate	3.34	1	i	ı	ı	1	ı	ı	I	1.00	12	14.9	1.2
6061	T651	Plate	1.50-2.50		1	!	i	1.00	10	26.6	6.0	1.00	2	21.5	0.4

TABLE 7.0.3.1

PLANE STRESS AND TRANSITIONAL FRACTURE TOUGHNESS OF ALUMINUM 2000/6000 SERIES ALLOYS (WITHOUT BUCKLING CONSTRAINTS)

			7	_	T	Ť	T	7	7	T	_	ī	T	ī	_	1				_	1	T	Т	Т	Т	П	Ī
			ь	1	ŀ	;	!	!		;	!	!	2.6	;	!	æ			1	i	1.7	'	<u>'</u>	1	Ŀ	;	
	ion	1:0	=	1	!	:	:		i	i	;	;	30.5	;	1	19.4	·	;	1	1	107.1	;	i	ī	i	1	i
	eviat		=	!	:	!	!	1	!	;	1	;	=	1	1	12	:	1	1	1	2	1	1	1	1	1	1
	ard D		ь	1	1	;	!	1		i	4.	2.3	1	2.5	1.	:	-	1		;	1	1	1	1	1	-	i
	Specimen Thickness (in.) ze µ·Mean o·Standard Deviation	0.250	1	:		1		1	1	•	26.4	24.2	i	17.2	20.8				ï	!	ï	1	ı	-	1	I	1
si√in)	ickne		=	;	:	;	i		:	1	2		ï	8	2	ı	i	:	i	ı	:	i	ı	1	ı	i	1
$K_c~(Ksi\!\!/\!in)$	cimen Th μ - Mean		ь	!	i	i	:	:	1	;			i	2.4	ŧ	i	3.3		0.3	-	i	•••	I	i			i
	specim e μ -	0.125	#		:	ï	;		i	:-	1			23.5	1	i	40.2	•	30.4		i	-	:	-		1	i
	Spo n - Sample size		u	1	:	:	1	:	ı	:	:	1	į	12	:		7		7		ţ		1		i		-
	Samp		b	3.4	2.7	7.0	1.2	5.9	9.9	8.	:		ï	ï	1	:	i	1.8	i	1.2	ï	3.2	5.0	0.	9.	2.9	8.
	n - 9	0.063	ή	59.1	58.4	34.6	30.1	36.9	30.4	27.7	i	**	i		;	i	-:-	34.1	-	33.9	-	57.8	61.2	54.6	54.6	65.8	52.1
			u	2	5	5	2	4	9	2	:	1	I	1	ŀ		1	2	ł	2	ı	2	8	2	2	7	8
N.o.ld	Strength (Ksi)			81.8	65.4	75.9-77.0	75.9	76.9	75.8-76.0	75.8	77.4	77.4	76.1.77.5	77.4-78.4	78.0	77.4-78.4	68.6	68.0	68.4	67.2	58.2	62.0	62.0	62.0	62.0	62.0	62.0
men		Width (in.)		4.0	16.0	2.0	3.0	16.0	2.0	3.0	3.0	4.0	20.0	3.0	4.0	20.0	3.0	16.0	3.0	16.0	20.0	6.0	0'6	15.0	18.0	21.0	24.0
Specimen		Orient		T-L	T.L		L-I		Ē	7.1		1.7			T.L		F.		Ē	7.7	LT			£	2		
Toct	Temp (°F)			-423.	R.T.			R.T.										£	 i		R.T.			£	;		
	Condition/ Heat Treatment			¥ 84				776					1651					٤			T351			Ē			
	Alloy	-		2014							2020							2020 (ALCLAD)						2024			

TABLE 7.0.3.1 (CONCLUDED)

PLANE STRESS AND TRANSITIONAL FRACTURE TOUGHNESS OF ALUMINUM 2000/6000 SERIES ALLOYS (WITHOUT BUCKLING CONSTRAINTS)

1						_		_	_		==	_		_	
				٥	3.8	:	:	6:1	1	!	Ŀ		9.0	4.2	!
		tion	1.0	=	48.4	:	:	33.6	:	3	1	ì	84.6	66.3	ŧ
		eviat		u	12	1	;	12	1	1	1	1	10	12	:
) ard E		Ω	!	2.5	8.0	!	1	1	1	2.7	1	I	•••
		kness (in.) σ - Standard Deviation	0.250	#		31.2	47.1	1	i	Ī	1	38.1	-	:	1
	ıi√in)	ickne		u	:	9	7	ï	1	ï	1	9			
	K _e (Ksi√in)	en Th Mean		ь		1.8	:	ï	1	ì	ı	-		:	-
		Specimen Thickness (in.) n · Sample size μ · Mean σ · Stands	0.125	=	:	44.8	:	1	-:-	ı	ı			:	ï
		S le size		c	:	8	::	;	:	:	ı	i	i	1	:
		Samp		Q	:	ı	:	i	4.7	9.	3.1		:	1	2.1
		n . i	0.063	1		ï	1	i	62.9	42.4	45.8	i	::	:	77.0
				u	i	:	**		9	4	9		ı	:	ေ
		Strength (Ksi)			65.8-66.1	56.6-65.4	65.8-68.0	64.4-65.4	72.9	70.8-72.6	71.2	67.4-62.9	50.6-52.0	49.3-51.2	57.7
2	u o m		Width (in.)		20.0	3.0	4.0	20.0	16.0	2.0	16.0	3.0	20.0	20.0	16.0
	Specimen		Orient		LT		T.L		LT	ŧ	7.7	T-L	LT	T-L	LT
	7 E	Temp (°F)				E	- -			R.T.		R.T.	£		R.T.
		Condition/ Heat Treatment				1304	1001			T86		1851	1300	1001	T87
		Alloy						2024 (Cont'd)	ì			5124		2219	

TABLE 7.0.3.2

PLANE STRESS AND TRANSITIONAL FRACTURE TOUGHNESS OF ALUMINUM 2000/6000 SERIES ALLOYS (WITH BUCKLING CONSTRAINTS)

	Ę	Snecimen	men	77.2						$K_{\rm c}~(Ksi\!\!\!\!\!\!\!/ i\!$	si√in)					
Condition/ Heat Treatment	Temp (°F)			Strength (Ksi)		n S	ampl	Spe n - Sample size	pecim	en Th Mean	ickne o	Specimen Thickness (in.) ze µ·Mean o·Standard Deviation	ard D	evia	tion	
		Orient	Width (in.)		0	0.063			0.1			0.125				
					u	크	Q	۵	=	ь	u	=	ь	5	ᆿ	ľ
		E	4.0	74.1	2	59.2	1:1	,	1	i	1	ŀ	;			L
		15	18.0	74.1	4	74.1	3.2	-	:		:	:	;			L
	-320.		3.0	75.9	6	46.5	6.3	-	;	;	;	!	;			
		T·L	0.9	75.9	2	48.2	4.6	;	ı	ì	-	i	1			
			12.0	75.9	91	49.7	3.8	i	i	1	!	፡	ı			L
	# Q	4.1	16.0	68.4	2	64.9	3.4	i	:	:	1	:	1			_
		1.71	18.0	65.2	9	11.9	3.4	i	i	1	i	:	-			
	R.T.	T·L	6.0	67.0		:	:	;	1	1	2	63.0	1.4			
	± a	L-I	6.0	i	•••	1	ï	i	1	i	2	77.1	9.9			
		T·L	6.0		ì	1	i	-	1	i	2	72.3	2.0			
	P. P.	L-I	6.0	64.8	:	:		;	ï	ī	2	65.4	3.8			
		T-L	6.0	62.0-64.1	•••	1	i	ì	:	i	3	67.3	1.9			
	-423.	LT	16.0	73.8	2	9.06	3.2	:	1	ı	,	:	1	Ĺ		
								1								

TABLE 7.0.4.1

FOR ALUMINUM 2000/6000 SERIES ALLOYS IN LAB AIR AT ROOM TEMPERATURE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK FATIGUE CRACK GROWTH RATE (FCGR) COMPARISON

22 FREQUENCY: 5-30 Hz Δ.K. Leval (Ksi\in) PCGR (10 4 h/cycle) 20.0 21.26 309.7 158.8 29.14 10.0 2.86 1.09 2.85 7.07 6.81 8.29 4.31 6.0 0.48 3.08 0.31 0.7 10 64 0.12FREQ (Hz) 30 8 22 22 25 10 ю 10 STRESS RATIO: -1.0 - 0.8 0.5 9.0 0.3 0.1 0.1 0.2 × 0.1 ÷ PRODUCT FORM UNSPECIFIED CASTING CASTING CASTING T6; SOL. HEAT TREAT 1010F 24HRS; H2O Q AT 160F WITH 9 SEC QUENCH DELAY CONDITION/ HEAT TREATMENT **ORIENTATION: Unspecified T851** <u>1</u>2 77 ALLOY A201 A357 2219

100.0

TABLE 7.0.4.2

AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK FOR ALUMINUM 2000/6000 SERIES ALLOYS IN LAB AIR AT ROOM TEMPERATURE FATIGUE CRACK GROWTH RATE (FCGR) COMPARISON

ORIE	ORIENTATION: L-T	STRESS RATIO: -1.0 - 0.8	VTIO: -1.0	0.8		FREQ	UENCY	FREQUENCY: 0.1 - 30 Hz	0 Hz	
						PC	CR (10"	PCGR (10 ^d hycycle)		
TOTAL	COMMITTEEN HEAT TREATMENT	FORM	Ŗ	FREQ (Hz)		ΔK	Level	AK Level (Ksivin)	3)	
					2.6	5.0	10.0	20.0	0.08	0,82
		SHEET	0.05	2			6:39			
			0.05	2			6.12			
			0.25	2			8.73			
7,00	ŠĒ		0.25	2			10.39			
2014	QI.		0.4	2		1:31	13.69			
			0.4	2		1.41				
			0.5	2		1.6				
			0.57	2		1.03				
	176	SHEET	0.	13.3			,	103.95		
2020	- M S E	SID 4 AG	-0.5	5.2			3.4			
	1001	FLAIE	0.	5.2			3.41			
			О.	13.3				28.56		
			0.05	rc	0.04	0.44	5.11	37.22		
2024	T3	SHEET	0.05	סז		0.23	4.34	94		
			0.05	10		0.27	4.1	31.19		
			0.2	10		0.24	10.21	29.64		

FOR ALUMINUM 2000/6000 SERIES ALLOYS IN LAB AIR AT ROOM TEMPERATURE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK FATIGUE CRACK GROWTH RATE (FCGR) COMPARISON

			100.0																
30 Hz	(9)	(ii)	50.0										_						
7: 0.1 -	⁸ in/cyal	(Ksív/	20.0	196.72	108.59	84.19	134.24			72.53	68.27		44.18	165.36		108.2	43.66	62.29	152.02
FREQUENCY: 0.1 - 30 Hz	FCGR (10.ºª tr/cycle)	ΔΚ Level (Kaiγin)	10.0		8.19	9.28	9.34	29.04	18.49	10.37	12.2	9.8	6.14		39.33		8.6		10.3
FREQ	PIC	ΔK	6.0		0.47	0.65	0.45	1.89	1.12		0.17						0.27		0.5
			2.5		60'0	0.09		0.16	0.15										
. 0.8	Sam.	Hz)		3.33	ō	5	8-15	10	10-15	20	07	20	8	3	9	2-3	ស	3-6	2-10
лто: -1.0		Ŗ		0.33	0.4	0.4	0.4	0.8	0.8	-1	-0.5	0.05	0.	0.4	0.8	-1	-1	-1	-1
STRESS RATIO: -1.0 - 0.8	morranoum.	FORM				SHEET	(Cont'd)				PLATE			SHEET			i i	FLATE	
ORIENTATION: L-T	The state of the s	HEAT TREATMENT						T3 (Cont'd)								T351			
ORIE	3001.17	TOTAL STATE									2024	(Cont'd)							

FOR ALUMINUM 2000/6000 SERIES ALLOYS IN LAB AIR AT ROOM TEMPERATURE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK FATIGUE CRACK GROWTH RATE (FCGR) COMPARISON

STRESS RATIO: -1.0 - 0.8
PRODUCT R FREQ
-0.5
0
0
0.01
0.01
0.05
0.05
PLATE 0.05
(Cont'd) 0.05
0.1
0.1
0.3
0.33
0.4
4.0
0.4

FOR ALUMINUM 2000/6000 SERIES ALLOYS IN LAB AIR AT ROOM TEMPERATURE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK FATIGUE CRACK GROWTH RATE (FCGR) COMPARISON

ORIENTATION: L-T

STRESS RATIO: -1.0 - 0.8

FREQUENCY: 0.1 - 30 Hz

			100.0																	
00 IIZ	(9)	(ii)	80.0																	
FIREQUEINCI: 0.1 - 30 IIZ	PCGR (10 4 tr/cycle)	AK Level (Ksi/in)	20.0				,									72.99				
OLENO	CR (10	Level	10.0		10.72	13.16	12.69	14.67	32.4		27.69		56.84			5.32		12.95		
rned	FC	ΔK	6.0	0.52	0.57		0.81		1.65	1.42		1.19		1.79	0.13	0.14		0.46	1.3	
			2.5		0.04							0.12		0.13			90:0	0.04		0.13
0.0		FREQ (Hz)		10	12	20	10	20	1-6	5-10	5-10	15	3-16	20	6	20	6	20	20	25
		H		0.4	0.4	0.5	9.0	9.0	9.0	0.8	0.8	0.8	0.8	0.8	0.05	0.1	0.5	0.5	0.8	0.8
STILESS INTIO: -1.0 - 0.0		PRODUCT FORM							PLATE (Cont'd)									EXTRUSTION		
OMENIATION: E-1		CONDITION/ HEAT TREATMENT							T351 (Cont'd)								1	11351		
		ALLOY										2024 (Cont'd)								

AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK FOR ALUMINUM 2000/6000 SERIES ALLOYS IN LAB AIR AT ROOM TEMPERATURE FATIGUE CRACK GROWTH RATE (FCGR) COMPARISON

ORII	ORIENTATION: L-T	STRESS RATIO: -1.0 - 0.8	ATIO: -1.0	.0.8		FREQ	UENCY	FREQUENCY: 0.1 - 30 Hz	80 Hz	
300 # 17	***************************************					FC	CR (10	FCCR (10.4 in/oyele)	(9	
IOTH	HEAT TREATMENT	FORM	æ	FREQ (Hz)		ΔK	Lovel	ΔK Level (Ksiγin)	(n)	
					2.5	6.0	10.0	20.0	0.00	100.0
			.1	10			6.41	43.76		
	742	PLATE	0.02	10			4.41	20.66	998.91	
2024			0.6	10		0.43	7.79	43.92		
(Cont'd)	, ou	Edding	0.05	2				63.62		·
	101	Tagne	0.4	2				100.13		
	T851	PLATE	0.02	10			3.59	43.67		
	វោ	SHEET	0.02	01-1			3.46	11.27		
2091	T81 335F 32HRS	SHEET	0.1	5			6.18	37.78		
	T851 335F 16HRS	PLATE	0.1	5			6.36	56.32		
			-1	9			6.96			
			-1	1-20			5.68	48.49		
			-0.5	5.2			68.9			
2219	T851	PLATE	-0.3	9			7.01	51.71		
			-0.1	9			6.87	43.87		
			Ö	5.2			8.31	53.58		
			ó	9			4.29	33.74		

FOR ALUMINUM 2000/6000 SERIES ALLOYS IN LAB AIR AT ROOM TEMPERATURE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK FATIGUE CRACK GROWTH RATE (FCGR) COMPARISON

ORIENTATION: L.T

STREES BATTO: 10.08

FREDITENCY. 01

ORI	ORIENTATION: L-T	STRESS RATIO: -1.0 - 0.8	VTIO: -1.0	. 0.8		FREQ	CENCY	FREQUENCY: 0.1 - 30 Hz	0 Hz	
						FC	CR (10"	PCGR (10° integrals)	(6	
ALLOY	CONDITION/ HEAT TREATMENT	FORM	æ	FREQ (Hz)		ΔK	Level	ΔK Level (Ksiγln)	(n)	
					2.5	5.0	10.0	20.0	50.0	100.0
			0.01	3				43.24		
			0.01	9				46.17		
			0.04	1-20			4.05			
			0.05	1-20			3.58			Ì
			90'0	1-20			2.47	33.87		
			90.0	1-20			5.18	48.49		
2219 (Contd)	T851 (Cont'd)	PLATE (Cont'd)	90.0	9			6.19			
			0.1	1-20				44.89		
			0.2	9				91.24		
			0.3	9		0.7	7.7	75.84		
			0.5	1-20			10.13			
			9.0	1-20			12.81			
-			0.7	9		1.37	17.57			
2419	T851	PLATE	0.1	30			6.5	51.72		
2618	T81	SHEET	0.4	2			7.77			
6061	T851	PLATE	0.1	-			55.48			

TABLE 7.0.4.2 (CONCLUDED)

FOR ALUMINUM 2000/6000 SERIES ALLOYS IN LAB AIR AT ROOM TEMPERATURE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK FATIGUE CRACK GROWTH RATE (FCGR) COMPARISON

100.0 2 FREQUENCY: 0.1 - 30 Hz ΔK Level (Ksi√in) PCGR (10.4 tr/cycle) 268.45 20.0 82.03 49.74 10.0 11.9 11.21 11.1 22 6.6 4.46 3.64 1.33 4.15 2.68 0.32 0.33 978 0.85 0.3 FREQ (Hz) 1-15 1-202 22 30 STRESS RATIO: -1.0 - 0.8 0.02 0.02 × 0.1 0.1 0.1 0.1 0.7 0.1 PRODUCT FORM FORGING FORGING FORGING 850F 2HRS; 665F 2HRS; WARM H20 Q; 230F 24HRS HEAT TREATMENT CONDITION/ Unspecified Unspecified ORIENTATION: L-T ALLOY AL905XL IN905XL

TABLE 7.0.4.3

FOR ALUMINUM 2000/6000 SERIES ALLOYS IN LAB AIR AT ROOM TEMPERATURE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK FATIGUE CRACK GROWTH RATE (FCGR) COMPARISON

100.0 900 FREQUENCY: 0.1 - 30 Hz ΔK Level (Ksk/in) PCGR (10 4 interela) 107.66 42.37 20.0 12.68 28.91 10.65 14.32 19.29 11.44 16.0 4.65 1.87 6.34 7.7 1.65 1.69 1.32 1.16 0.34 0.26 0.78 0.95 1.24 1.28 9 K 0.17 0.08 19 64 FREQ (Hg) 0.5-15 2-10 3-10 3 ဓ္ဗ ဓ္တ C4 ø ø 01 03 C4 STRESS RATIO: 0.0 - 0.8 0.05 0.05 0.05 0.57 0.67 0.05 0.05 0.250.25 9.0 0.4 0.4 0.5 9.4 0.4 9.0 PRODUCT FORM FORGING SHEET SHEET HEAT TREATMENT CONDITION/ ORIENTATION: T-L 3 2 ALLOY 2014 2024

FOR ALUMINUM 2000/6000 SERIES ALLOYS IN LAB AIR AT ROOM TEMPERATURE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK FATIGUE CRACK GROWTH RATE (FCGR) COMPARISON

100.0 0.08 FREQUENCY: 0.1 - 30 Hz AK Level (Kakin) FCGR (10 4 in/cycle) 173.27 153.61 666.53 792.88 108.72 790.1 80.0 92.68 16.0 31.84 6.94 7.84 9.92 9.83 5.53 7.97 9.0 1.07 1.26 0.68 2.5 FREQ (Hz) 0.1-0.410-15 10-15 0.1-0.31.6-5 10-15 3-10 5.17 2-3 4-9 2 2 13 10 STRESS RATIO: 0.0 - 0.8 0.33 0.08 0.08 0.1 0.1 0.1 0.1 0.1 0.1 0.4 0.1 0.1 0.1 0.1 0.1 × PRODUCT FORM FORGING PLATE SHEET HEAT TREATMENT CONDITION T861 **T852** ORIENTATION: T-L ALLOY 2024 (Cont'd)

TABLE 7.0.4.3 (CONCLUDED)

FOR ALUMINUM 2000/6000 SERIES ALLOYS IN LAB AIR AT ROOM TEMPERATURE FATIGUE CRACK GROWTH RATE (FCGR) COMPARISON AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK

ORIENTATION: T.L STRES

STRESS RATIO: 0.0 - 0.8

FREQUENCY: 0.1 - 30 Hz

									•	
						FC	CR (10	FCGR (10 ° incords)		
ALLOY	CONDITION/ HEAT TREATMENT	PRODUCT FORM	Ħ	FREQ (Hz)		ΔK	Level	ΔK Level (Kak/in)	3	
					2.5	5.0	10.0	20.0	60.0	160.0
			0.	13.3			3.52	21.01		
2024 (ALCLAD)	13	SHEET	0.33	13.3			7.14	62.46		
	T3	SHEET	0.02	1-25		0.46	2.42	28.28		
2091	T81 335F 32HRS	SHEET	0.1	5		0.41	3.76	40.5		
	T861 336F 16HRS	PLATE	0.1	5		0.58	7.59	61.17		
2419	T851	PLATE	0.1	30			5.32			
			0.1	10	0.28	3.05				
	:		0.1	30	0.34	2.56				
AL,806XL	Unspecified	FORGING	0.1	-		0.98	8.07	43.62		
			0.33	•		3.15	19.17			
860F	850F 2HRS; 665F 2HRS; WARM H20 Q;	53.85	0.1	9			17.71	171.44		
	230F 24HRS	FORGING	0.1	9		3.69				
TV906VI		Caron	0.02	0.1-20	1.24	18.92				
	Unspecified	FORGING	0.02	0.1-25	0.07	1.68	14.82	149.84		

TABLE 7.0.4.4

AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK FOR ALUMINUM 2000/6000 SERIES ALLOYS IN LAB AIR AT ROOM TEMPERATURE FATIGUE CRACK GROWTH RATE (FCGR) COMPARISON

ORI	ORIENTATION: S-T	STRESS RATIO: 0.1 - 0.33	TIO: 0.1	0.33	,	FREG	UENC	FREQUENCY: 10 - 30 Hz	2H 0	
						DU	GR (10	NCGR (10 ⁻⁴ hygycle)	6	
ALLOY	CONDITION/ HEAT TREATMENT	PRODUCT FORM	В	FREQ (Hz)		ΔK	Loval	ΔK Leval (Ksi\/in)	(ti)	
					2.5	6.6	10.0	20.0	60.0	100.0
			0.1	10	0.31	2.96				
			0.1	25	0.52	3.86	11.25			
AL905XL	Unspecified	FORGING	0.1	30		4.86				
			0.1			0.07	0.05	103.53		
			0.33			1.28	7.64			

TABLE 7.0.5

	STRESS CORROSION CRACKING THESHOLD DATA FOR ALUMINUM 2000/6000 SERIES ALLOYS AT ROOM TEMPERATURE	CRACK	NG THES.	HOLD OOM 1	DATA	RATURI	හ	
						K _{loc} Ksi√in	i	
Alloy	Condition/ Heat Treatment	Product Form	Specimen Orientation		Jan	Environment	ent	
				3.5% NaCl	Industrial ATM	Sump Tank Water	Salt- Dichromate Acetate	Seacoast ATM
2014	T651	Plate	8:L	7	7	7		
2020	T651	Plate	S-L				6	
	T81	Plate	S-L	19	19	19		
	T81 OVERHEATED WELD	Plate	S-L				11.3	
	T81 REPAIRED WELD AGED 16HR 325F HEAT AFFECTED ZONE	Plate	S-L				11.9	
2021	T81 REPAIRED WELD AGED 16HR 326F WELD CENTER LINE	Plate	7·S				10.3	
	T81 REPAIRED WELD AGED 16HR 325F WELD FUSION LINE	Plate	S-L			-	7.7	
	T81 WELDED AGED 16HR 326F FUSION LINE	Plate	S-L				8.5	
	T81 WELDED AGED 16HR 326F HEAT AFFECTED ZONE	Plate	S-L				13.3	
	T81 WELDED AGED 16HR 326F WELD CENTER LINE	Plate	8-1.				7.2	
	T361	Plate	7-8	10	6	10	10	
	AGE	Ē	LT				21.5	
: 6	1801	riate	S-L	16	15	91,		
2024			LT					22.8(3)
	T852	Forging	T-L					20.6(4)
			S-L					16.8(2)

TABLE 7.0.5 (CONCLUDED)

	STRESS CORROSION CRACKING THESHOLD DATA FOR ALUMINUM 2000/6000 SERIES ALLOYS AT ROOM TEMPERATURE	N CRACKI RIES ALL	ING THES OYS AT R	HOLD OOM 1	DATA	RATURI	ය	
					•	K _{Io∞} Ksi√in	ļi	
Alloy	Condition/ Heat Treatment	Product Form	Specimen Orientation		I	Environment	ant	
				3.5% NaCl	Industrial ATM	Sump Tank Water	Salt- Dichromate Acetate	Seacoast ATM
7010	· ACE	E	LT					26.4(4)
2124	1861	Plate	S-L					23.3(4)
	Т37	Plate	S-L	13	6	13		
			LT					34.5(2)
2219	T861	Plate	T-L					27
			S-L				18	29.5(2)
	T87	Plate	3-L	61	61	19		
6061	T651	Plate	7-8	50	20	50		

TABLE 7.1.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS FOR ALUMINUM 2000/6000 SERIES ALLOY 2014 AT ROOM TEMPERATURE

Product			/		K_{L_0}	$K_{Ic}~(ksi\sqrt{in})$	<u>6</u>			
Form	Condition/Heat Treatment			52	Specimen Orientation	n Orier	itation			
			L-T			T-L			S-L	
		Mean K _{te}	Std Dev	u	Mean K _{Ie}	Std Dev	u	Mean K _{te}	Std Dev	ű
Plate	T651	23.3	1.	10	21.4	1.2	19	17.8	0.1	2
	T6	27.9	8.0	2	17.4	1.7	4	16.9	1.9	5
Forging	T611	:	-	:	:	••		17.8	9.0	2
	T652	28.8	3.6	12	21.9	3.2	13	18.1	1.4	က
Forged Bar	T6 _.	:		::	16.7	9.0	2	:	÷	:

1 of 1

TABLE 7.1.1.2.1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2014 AT ROOM TEMPERATURE

	100.0	
	60.0	
Ą		47.65
ENVIRONMENT: H.H.A.	CGR (10 * in/cycle AK Level (Ksiy/in) 100 20.0	9.01
MENT	FCGI	0.73
IRON	2.5 8	О.
ENV		
	FREQ (Hz)	6
	R	-1
	RODUCT	FORGING
T-7	PRO	FOI
ORIENTATION: L-T		
NTAT	CONDITION/ HEAT TREATMENT	
ORIE	CONDITION/ AT TREATME	7J.
	CON	
	H	

TABLE 7.1.1.2.2

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2014 AT ROOM TEMPERATURE

ORIENTATION: L-T

ENVIRONMENT: Lab Air

CONDITION/ HEAT TREATMENT PRODUCT FORM R FREQ (Hz) FREQ 2.55 FCGR (10°5 in/cycle) 0.05 2 5.0 1.00 50.0 0.05 2 6.39 6.39 6.39 0.05 2 6.12 6.39 6.39 0.25 2 6.12 6.39 6.39 0.4 2 1.31 13.69 6.39 0.4 2 1.41 13.69 6.39 0.5 2 1.41 13.69 6.39 0.4 2 1.41 13.69 6.39 0.5 2 1.41 13.69 6.39 0.5 2 1.41 13.69 6.39 0.5 2 1.41 1.56 7 0.5 2 1.61 1.61 1.61 0.5 2 1.61 1.61 1.61 0.5 2 1.61 1.61 1.61 0.5 2 1.61 1.	THE PROPERTY OF THE PARTY OF TH	1			TITLE TRACTIFICATION TO THE TOTAL	TOTTAL	757 - 1			
PRODUCT R FREQ. (Hz) x.5 x.0 FORM 0.05 2 8.0 2 0.05 2 0.05 2 0.05 2 1.31 0.4 2 1.31 0.4 2 1.41 1.41 1.41 1.41 1.41 1.41 1.41 1.60								4		
PROBLICE R FREQ 6.05 2 5.0 0.05 2 2 0.25 2 2 0.26 2 2 0.26 2 1.31 0.4 2 1.31 0.4 2 1.41 0.4 2 1.41 0.5 2 1.41 0.4 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.61 0.5 2 1.63 0.5 2 1.63						FC	GR (10	infcycl	•	
FORM (Hz) 245 6.0 0.05 2 2 6.0 0.05 2 2 2 0.25 2 2 2 0.25 2 2 2 0.4 2 1.31 0.4 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.41 0.5 2 1.61 0.5 2 1.63	CONDITION/	PRODUCT	٥	FREG						
ALT OF THE PARTY ALT OF THE PARTY <th>HEAT TREATMENT</th> <th>FORM</th> <td>4</td> <td>(Hz)</td> <td></td> <td>4</td> <td>K Level</td> <td>(Ksi/in</td> <td>•</td> <td></td>	HEAT TREATMENT	FORM	4	(Hz)		4	K Level	(Ksi/in	•	
AND TOTAL AND TOTAL <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>										
0.05 2 0 0.05 2 0 0.25 2 0 0.25 2 0 0.4 2 1.31 0.4 2 1.41 0.5 2 1.61 0.6 2 1.6 0.6 2 1.6 0.6 2 1.6 0.6 2 1.6 0.6 2 1.6 0.6 2 1.6 0.6 2 1.6 0.6 2 1.6 0.6 2 1.6 0.6 2 1.6 0.6 2 1.6 0.6 2 1.6 0.6 2 1.6 0.6 2 1.6 0.6 2 1.03					2.5	5.0	10.0	20.0	60.0	100.0
8HEET 0.25 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			0.05	2			6:39			
SHEET 0.25 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			0.05	2			6.12			
SHEET 0.4 2 1.31 0.4 2 1.31 0.4 2 1.41 0.5 2 1.61			0.25	2			8.73			
0.4 2 1.31 0.4 2 1.41 0.5 2 1.6 0.57 2 1.03	522		0.25	2			10.39			
2 2 2	o,	SAREI	0.4	2		1.31	13.69			
8 8			0.4	2		1.41				
2			0.5	2		1.6				
			0.57	2		1.03				

1 of 1

TABLE 7.1.1.2.3

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2014 AT ROOM TEMPERATURE

	100.0		
	900		
I.A.	FCGR (10. ⁴ in/cycle) ΔK Level (Κείγ/in) 10.0 20.0		
ENVIRONMENT: H.H.A.	GR (10 K Level	16.93	21.88
ONME	FC A	1.21	1.21
ENVIR	2.5		
	FREQ (Hz)	6	6
•	R	.1	0.05
i T-L	PRODUCT		rokalna
ORIENTATION: T-L	CONDITION/ HEAT TREATMENT	ě	01

1.87

0.05

FORGING

TABLE 7.1.1.2.4

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2014 AT ROOM TEMPERATURE

FCGR (10° in/cycle) ΔK Level (Ksiv/in) 9.02 **ENVIRONMENT: Lab Air** 11.44 10.65 14.32 19.29 10.0 6.34 7.7 0'9 1.28 1.69 1.16 1.32 84 104 FREQ (Hz) N 0.05 0.05 0.25 0.25 0.57 0.5 0.57 0.4 0.4 PRODUCT FORM SHEET ORIENTATION: T-L HEAT TREATMENT CONDITION/ <u>13</u>

100.0

600

TABLE 7.1.2.1

Name	A)		Y -	A	₹		ALUMINUM	M 2014	14 K _{Io}	1 11			2			
Part Part		- KODOCI	- E			 }	20	PECIME	z	CRACK			K			
0.89 RT. 6.34 1.500 0.714 NB 0.788 0.60 28.50 0.718 0.778 0.60 28.50 0.718 0.778 0.60 2.800 0.718 NB 0.778 0.60 0.778 0.778 0.60 0.778 0.778 0.60 0.778 0.778 0.60 0.778 0.778 0.60 0.17 1.600 0.17 1.650 1.77 1.670 1.873 1.77 1.873 1.77 1.873 1.77 1.873 1.77 1.873 1.77 1.873 1.77 1.873 1.77 1.873 1.77 1.873 1.77 1.873 1.77 1.873 1.77 1.873 1.77 1.873 1.77 1.873 1.77 1.873 1.77 1.873	<u>۶</u>					STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.5 • (K, 1798)* (In.)	K. (Keivin.)	K. MEAN	STAN	DATE	REFER
0.89 RT C53 L1500 0.713 NB 0.778 0.46 27.90 27.9 0.8 1973 1	Š				<u>_</u>	63.8	1.500	0.714	NB	0.798	09'0	28.50			1973	86213
0.89 RT. C246 OEA0 OEA9 NB O.286 O.17 1.650 174 1.74 1			\dashv	-	;	63.8	1.500	0.713	NB	0.778	0.46	27.30	27.9	8.0	1973	86213
9.89 RT TAL 62.4 0.509 NB 0.289 0.17 16.50 17.4 1.7 18.73 1.7 18.73 1.7 18.73 1.7 18.73 1.7 18.73 1.7 18.73 1.7 18.73 1.7 18.73 1.7 18.73 1.7 18.73 1.7 18.73 1.7 18.73 1.8 1.7 18.73 1.8 1.7 1.8 1.7 1.8 1.7 1.8		8.0				62.4	0.500	0.249	NB	0.266	0.15	16.50			1973	86213
6.80 7.7 6.80 0.490 0.286 0.286 0.28 1920 174 177 1873 <th< td=""><td>ž.</td><td></td><td></td><td></td><td></td><td>62.4</td><td>0.500</td><td>0.249</td><td>NB</td><td>0.269</td><td>0.17</td><td>16.50</td><td></td><td></td><td>1973</td><td>86213</td></th<>	ž.					62.4	0.500	0.249	NB	0.269	0.17	16.50			1973	86213
8.00 R.C. 63.0 6.50 0.246 NB 0.266 0.21 18.00 19.00 1973 <	5		T			63.0	0.490	0.249	NB	0.258	0.23	02.61	17.4	1.7	1973	86213
8.00 RT. 610 2.000 1.000 NB 0.24 1810 4.00 1972 19		9				63.0	0.500	0.249	NB	0.266	0.21	18.20			1973	86213
8.00 RT 4.10 0.10 NB 1.000 0.24 19.10 18.1 1.91 1.91 1.97 19.70		86	۰		-	61.0	2.000	1.000	NB	1	0.24	19.00			1972	82675
8.00 ATT 51 610 2.000 1.000 NB 0.24 19.10 19.10 19.72	Ğ					61.0	2.000	1.000	NB	1.000	0.24	19.10			1972	82675
8.00 F.10 C.10 L.00 L.00 <th< td=""><td>5</td><td></td><td></td><td></td><td></td><td>61.0</td><td>2.000</td><td>1.000</td><td>NB</td><td>1</td><td>0.24</td><td>19.10</td><td>19.1</td><td>0.1</td><td>1972</td><td>82675</td></th<>	5					61.0	2.000	1.000	NB	1	0.24	19.10	19.1	0.1	1972	82675
8.00 A.T. 61.0 1.000 NB 0.500 0.17 16.70 16.70 1972 1972 8.00 B.T. 5.1 61.0 1.000 1.000 NB 0.17 16.40 1.09 1.000 1.000 NB 0.17 16.70 1.09 1.000 NB 0.18 16.40 1.09 1.000 1.000 NB 0.18 1.60 1.000 1.000 NB 0.18 1.600 1.000 NB 0.18 1.600 1.000 NB 0.18 1.600 1.000 NB 0.18 0.18 0.26 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.18 0.260 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.18		9.0				61.0	2.000	1.000	NB	1.000	0.24	19.00			1972	82675
8.00 RT 61.0 1.000 NB 0.500 0.18 16.40 16.9 1972 1972 8.00 R.T 61.0 1.000 1.000 NB 0.17 16.40 1.9 1972 1972 8.00 A. 61.0 1.000 1.000 NB 0.18 16.40 A 1972		∞	٦		1	61.0	1.000	1.000	NB	0.500	0.17	15.70			1972	82675
8.00 R.T. S.L. 61.0 1.000 NB 0.17 16.40 16.9 1972 1972 1.00 1.00 1.000 1.000 1.000 1.000 NB 0.18 16.40 R. 1872 187		ă	٦			61.0	1.000	1.000	NB BB	0.500	0.18	16.40			1972	82675
8.00 + 100 1.000 NB 0.18 1640 P 1972 1.00 63.8 1.500 0.74 CT 0.776 0.25 20.30 P 1973 63.8 1.500 0.750 NB 0.750 0.50 28.50 7.79 0.8 1972 63.8 1.500 0.750 NB 0.750 0.4 27.30 27.9 0.8 1972 62.7 0.500 0.250 NB 0.250 0.21 18.20 8 1972 1972 62.7 1.500 0.750 CT 0.750 0.14 15.10 1972 1972 62.7 1.500 0.750 CT 0.750 0.14 15.10 1972 1972 62.7 1.500 0.750 CT 0.750 0.14 14.90	 For					61.0	1.000	1.000	NB NB	ļ	0.17	15.70	16.9	1.9	1972	82675
63.8 1.500 0.748 CT 0.778 0.265 20.30 7 1973 63.8 1.500 0.750 NB 0.750 0.660 28.50 27.9 0.8 1972 63.8 1.500 0.750 NB 0.750 0.46 27.80 27.9 0.8 1972 62.7 1.500 0.750 NB 0.750 0.14 18.30 7 4 1972 62.7 1.500 0.750 CT 0.750 0.14 16.10 18.7 2.4 1972 62.7 1.500 0.750 CT 0.750 0.14 16.10 18.7 2.4 1972 62.7 1.500 0.750 CT 0.750 0.23 19.20 19.7 0.89 84 T.L 62.4 1.500		98	٥		I	61.0	1.000	1.000	SN SN	i	0.18	16.40			1972	82675
R.T. L.C 63.8 1.500 0.750 NB 0.750 0.60 28.50 27.9 0.8 1972 63.8 1.500 0.750 NB 0.750 0.21 18.20 27.9 0.8 1972 62.7 1.500 0.750 NB 0.250 0.14 14.80 18.20 1972 62.7 1.500 0.750 CT 0.750 0.14 16.10 16.7 1972 62.7 1.500 0.750 CT 0.750 0.14 16.10 16.7 1972 62.7 1.500 0.750 NB 0.250 0.14 16.10 16.7 1972 0.89 84 T.L 62.4 1.500 0.750 CT 0.750 0.14 14.90 1972		-		_	1	63.8	1.500	0.749	CT	0.778	0.26	20.30			1973	86213
R.T. 63.8 1.500 0.750 NB 0.760 0.46 27.9 27.9 0.8 1972 62.7 0.500 0.250 NB 0.250 0.13 14.30 19.2 1972 62.7 1.500 0.750 CT 0.750 0.14 16.10 16.7 2.4 1972 62.7 1.500 0.750 CT 0.750 0.14 16.10 16.7 2.4 1972 62.7 0.500 0.250 NB 0.250 0.23 19.20 1972 0.89 84 T.L 62.4 1.500 0.760 CT 0.763 0.14 14.90 1973	Ğ					63.8	1.500	0.750	NB	0.750	0.50	28.50			1972	82879
H.T. 62.7 0.500 0.250 NB 0.250 0.21 1820 1820 1820 1872 <th< td=""><td>•</td><td>_</td><td>\dashv</td><td>\dashv</td><td>3</td><td>63.8</td><td>1.500</td><td>0.750</td><td>NB NB</td><td>0.750</td><td>0.46</td><td>27.30</td><td>27.9</td><td>9.0</td><td>1972</td><td>82879</td></th<>	•	_	\dashv	\dashv	3	63.8	1.500	0.750	NB NB	0.750	0.46	27.30	27.9	9.0	1972	82879
R.T. C.L. 62.7 1.500 0.750 CT 0.750 0.14 14.30 16.7 2.4 1972 62.7 1.500 0.750 CT 0.750 0.14 16.10 16.7 2.4 1972 62.7 0.500 0.250 NB 0.250 0.23 19.20 1972 0.89 84 T.L 62.4 1.500 0.760 CT 0.753 0.14 14.90 1973		_']			1	62.7	0.500	0.250	SE SE	0.250	0.21	18.20			1972	82879
A.1. C-L 62.7 1.500 0.750 CT 0.750 0.14 15.10 16.7 2.4 1972 62.7 0.500 0.260 NB 0.250 0.23 1920 1972 0.89 84 T-L 62.4 1.500 0.760 CT 0.763 0.14 14.90 1973	þ					62.7	1.500	0.750	CT	0.750	0.13	14.30			1972	82879
62.7 0.500 0.250 NB 0.250 0.25 19.20 19.20 1972 0.89 84 T·L 62.4 1.500 0.76 CT 0.753 0.14 14.90 1973			₫ 		l	62.7	1.500	0.750	£	0.750	0.14	15.10	16.7	2.4	1972	82879
0.89 84 T·L 62.4 1.600 0.750 CT 0.753 0.14 14.90 1973	_					62.7	0.500	0.250	ev Ev	0.250	0.23	19.20			1972	82879
	ନ୍ଦ୍ର			4	T·L	62.4	1.600	0.750	cr	0.753	0.14	14.90		;	1973	86213

					ALU	ALUMINUM	I 2014	4 K _{Io}							
	PRODUCT	UCT		·		y Sz.	SPECIMEN	z	CRACK			K _I ,		·	
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YTELD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DEBIGN	LENGTH (in.) A	2.5 • (K _{k./} TYB)* (in.)	K. (Ketvín.)	K. MEAN	STAN	DATE	REFER
3T	Forged Bar	4.50	R.T.	LT	64.2	1.490	0.689	NB	0.737	0.49	28.40	i	ı	1973	86213
	Forged	4.50	1		62.4	0.500	0.249	NB	0.258	0.19	17.10			1973	86213
al.	Bar	4.50	i.	7	62.4	0.500	0.249	NB	0.267	0.17	16.30	16.7	9.0	1973	86213
3T	Forged Bar	4.50	82	T-L	62.4	1.500	0.749	CT	0.762	0.19	17.40	i	i	1973	86213
E	Forged	4.50	ì	ř	62.4	1.500	0.750	CT	0.783	0.21	17.90			1973	86213
91.	Bar	4.50	2	T-L	62.4	1.500	0.751	CT	0.749	0.18	16.60	17.3	6.0	1973	86213
		1.50	8		56.6	1.000	0.500	CT	0.486	0.31	19.90			1973	86213
161	Forging	1.60	K.T.		56.6	1.000	0.500	CT	0.508	0.31	19.90	19.9	0.0	1973	86213
•	ŗ	1.96	8		62.4	1.000	0.499	Į.	0.491	0.22	18.70			1973	86213
161	Forging	1.96	7.9	J.	62.4	1.000	0.499	CT	0.479	0.20	17.70	18.2	0.7	1973	86213
1		1.00	Ę	-	60.2	1.490	0.750	CT	0.783	0.23	18.20			1973	86213
1611	Forging	1.00	K.T.	7	60.2	1.490	0.749	CT	0.771	0.21	17.30	17.8	0.6	1973	86213
		1.00			61.3	1.600	0.749	CT	0.778	0.24	19.00			1973	86213
***	£	1.00	5		61.3	1.500	0.749	CT	0.767	0.23	18.60			1973	86213
1101	rorging	1.00	8	, ,	62.0	1.500	0.747	СŢ	0.797	0.22	18.50	18.7	0.2	1973	86213
		1.00			62.0	1.500	0.749	CT	0.802	0.23	18.80			1973	86213
Š	Ē	1.00	ć		75.0	2.000	1.018	NB	1.008	0.90	26.10			1973	86213
1651	Plate	1.00	OZ S	74.	75.0	2.000	1.020	NB B	1.010	0.30	26.10	26.1	0.0	1971	84288

3 of 6

			ALCIMINOM	MINOM	_	£014	Pic							
			. 1012		2	SPECIMEN	z	CRACK			K _I °			
THICK TEMP OR STR (In.) (PP) (Kai)	SPEC		STR (Kal)		WIDTH (In.)	THICK (in.) B	DESIGN	(in.) A	2.6 * (K _{L/} IYB)* (in.)	K. (Kelvin.)	K. MRAN	STAN	DATE	REFER
5.00 58.6	68.6	68.6	58.6		2.000	0.999	NB NB	0.975	0.37	22.40			1973	86213
2.50 64.4	64	29	64	4	1.990	1.001	CT	0.970	0.33	23.30			1973	86213
2.50			~ 1	64.4	2.000	1.000	СŢ	0.966	0.34	23.60			1973	86213
1,00	1	1		66.4	2.000	1.020	NB RB	0.966	0.35	24.70			1973	86213
1.00		E		66.4	2.000	1.018	NB	0.970	0.32	23.60			1973	86213
		\$	- 1	66.4	2.000	1.019	æ	0.961	0.35	24.80	23.3	1.0	1973	86213
1.00				66.4	2.000	1.020	NB	1.000	0.33	24.00			1973	86213
1.76	<u>.</u>		1	68.4	2.000	0.999	NB	0.967	0.26	21.90			1973	86213
1.76				68.4	2.000	0.998	NB NB	0.960	0.27	22.40			1973	86213
1.76				68.4	1.990	0.999	SB BB	0.960	0.27	22.30			1973	86213
6.00			- 1	57.8	2.000	1.000	NB NB	0.997	0.27	19.10			1973	86213
1.00				8.28	2.000	1.016	NB BR	0.989	0.26	20.90			1971	84288
1.00				8.58	2.000	1.022	NB	1.008	0.27	21.80			1973	86213
1.8				65.8	2.000	1.016	EN EN	0.985	0.26	20.90			1971	84288
1.00				8.29	2.000	1.016	NB	0.966	0.24	20.30			1973	86213
1.00			1	8.39	2.000	1.000	СТ	1.084	0.26	21.20			1973	86213
1.00 R.T. T-L		T.L		65.8	2.000	1.016	NB	0.970	0.25	21.00	21.4	175	1971	84288
1.00				65.8	2.000	1.023	NB BN	0.980	0.28	21.90			1973	86213
1.00				65.8	2.000	1.022	NB BN	1.023	0.29	22.30			1973	86213
1.8				65.8	2.000	1.023	NB	0.997	0.28	22.10			1973	86213
1.00				65.8	2.000	1.016	NB	0.961	0.25	20.70			1973	86213
1.00			1	65.8	1.990	1.023	NB	1.000	0.28	22.00			1973	86213
1.00			\dashv	65.8	2.000	1.016	NB	0.998	0.29	22.60			1871	84288

	$\mathbf{K}_{\mathbf{I}o}$	9.5 ° (K., IYS)* (in.) K., K., K., STAN DATE REFER (Ketvlin.) MEAN DEV	20.20 1973 86213	20.10 1973 86213	20.70 84288	22.50 Cont'd Cont'd 1973 86213	23.60 1973 86213	29.60 1973 86213	17.90 . 1973 86213	17.70 17.8 0.1 1973 86213	24.90 1973 86213	20.30 1973 86213	22.70 22.7 1.6 1973 86213		23.00 1973 86213	20.70 1973 86213	19.50 1973 86213	20.00 20.0 0.5 1973 86213	19.60 1973 86213	23.40 1973 86213	24.10 23.8 0.5 1973 86213	1950		19.3 0.2 1973
DESIGN (in.) DESIGN (in.) NB 0.960 NB 0.981 NB 0.980 NB 0.980 NB 0.980								NB 1.010	NB 0.529	NB 0.522	CT 1.006	CT 0.966	CT 0.960	CT 0.973	CT 0.949	CT 0.981	CT 0.984	CT 0.978	CT 0.964	CT 0.490	CT 0.503	CT 0.495	CT 0.499	CT 0.491
SPECIMEN WIDTH THICK (in.) W B			-,	4	2.000 1.016	2.000 1.000	2.000 0.997	2.000 1.000	1.000 0.501	1.000 0.498	1.001	2.000 1.002	2.000 1.002	2.000 1.002	2.000 1.002	2.000 1.002	2.000 1.000	2.000 1.001	2.000 1.001	1.000 0.500	1.000 0.499	1.000 0.501	1.000 0.501	1.000 0.501
•		STR WILL STR WILL (Kel) (1	65.8 2.0	65.8 2.0	65.8 2.0	66.2 2.0	66.2 2.0	66.2 2.0	55.0 1.0	65.0	62.7 2.0	63.5 2.	66.4 2.	66.4 2.	66.4	63.5	65.8 2.	65.8 2.	65.9 2.	66.7 1.	66.7 1.	66.7 1.	66.7 1.	66.7
		SPEC			T.L	Cont'd			į	7,			LT				Ē	₫		,	Ŝ		7	
		TEST TEMP (°F)			R.T.	Cont'd			É	i X			*					<u>*</u>			8		88	
	Sucr	THICK (in.)	1.00	1.00	1.00	1.75	1.75	1.75	2.00	9.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.50	1.50	1.50	1.60	1.50
1000	PRODUCT	FORM			Plate	Cont'd				Plate			Plate				Ē	Flate		ì	Flate		Plate	
	-	CONDITION			T651	Cont'd			LOCK	1691			T651				V J C L	1891		* II Y 44	1691		T651	

				ALU	ALUMINUM	1 2014	4 K _{Ie}							
PRODUCT	1				S 2	SPECIMEN	Z	CRACK			K _I °			
THICK TH	声音と *	TEST TEMP (°F)	SPEC	YIRLD STR (Kel)	WIDTH (in.)	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 • (K _{te} ,TYS)* (in.)	K. (Kelvlin.)	K. MEAN	BTAN	DATE	REFER
1.60				63.2	1.000	0.500	CT	0.504	0.33	22.80			1973	86213
1.60		88	8.F.	63.2	1.000	0.501	CT	0.510	0.32	22.50	22.4	5	1973	86213
1.50				63.2	1.000	0.500	CT	0.506	0.30	21.80		}	1973	86213
1.60		g	I	63.2	1.000	0.500	CT	0.500	0.22	18.70			1973	86213
1.50		8	1	63.2	1.000	0.500	CT	0.519	0.24	19.70	19.2	0.7	1973	86213
6.00			1	60.7	3.000	1.500	NB	1.498	0.62	30.20			1970	77720
2.00				60.7	3.000	1.500	NB	1.460	0.54	28.20			1970	11720
6.00				60.7	3.000	1.500	NB BB	1.530	0.58	29.20			1970	77720
4.00			1	62.5	3.000	1.502	NB BB	1.486	0.75	34.20			1970	77720
4.00		· ·	1	62.5	3.000	1.502	NB	1.577	0.80	35.40			1970	77720
4.00		Ε 2	<u> </u>	62.5	3.000	1.502	NB	1.442	0.69	32.80			1970	77720
3.00			l	66.2	2.000	1.000	NB	0.925	0.39	26.30	28.8	3.6	1970	17720
3.00			1	66.2	1.990	1.000	NB	0.970	0.40	26.50	······································		1970	17720
3.00		_	1	66.2	2.000	1.000	NB	0.968	0.42	27.10			1970	17720
2.00			1	66.5	1.500	0.750	SN SN	0.688	0.35	24.90			1970	17720
2.00			1	66.5	1.600	0.752	NB	0.728	0.33	24.30			1970	77720
2.00	- 1			66.5	1.500	0.751	NB	0.752	0.41	26.90			1970	17720

TABLE 7.1.2.1 (CONCLUDED)

					ALU	ALUMINUM	1 2014	4 K _{I°}							
	PROI	PRODUCT				To l	SPECIMEN	Z	CRACK			K _I °			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Ket)	WIDTH (in.)	THICK (in.) B	DESIGN	LENGTH (in.) A	2.5 * (K _{k./} TYS)* (in.)	K. (Kelvin.)	K. MEAN	STAN DRV	DATE	REFER
		6.00			67.3	3.000	1.500	NB	1.662	0.24	17.90			1970	77720
		6.00			67.3	3.000	1.500	NB	1.597	0.33	20.70			1970	17720
		9.00		1	67.3	3.000	1.500	NB	1.612	0.31	20.10			1970	77720
		9.00			57.7	4.000	2.005	NB	2.092	0.49	25.40			1970	77720
		90.9			57.7	4.000	2.004	NB	2.215	0.39	22.80			1970	77720
		9.00			67.7	4.000	2.003	NB	1.987	99'0	29.80			1970	77720
T652	Forging	4.00	R.T.	T-L	59.2	3.000	1.502	NB	1.562	0.37	22.70	21.9	3.2	1970	77720
		4.00			59.2	3.000	1.502	NB	1.497	0.38	23.00			1970	77720
		4.00			59.2	3.000	1.602	NB	1.642	0.40	23.70			1970	77720
		2.00			64.9	1.500	0.754	NB	0.748	0.22	19.20			1970	77720
		2.00			64.9	1.500	0.753	NB	0.727	0.22	19.30			1970	17720
		3.00			66.1	2.000	0.999	NB	1.030	0.24	20.30			1970	77720
		3.00			65.1	1.990	0.999	NB	1.025	0.22	19.50			1970	77720
		2.00			56.1	1.000	0.500	NB	0.467	0.25	17.80			1970	77720
T652	Forging	6.00	R.T.	3.6	56.1	1.000	0.501	NB	0.470	0.91	19.60	18.1	1.4	1970	77720
		6.00			56.1	1.000	0.498	NB NB	0.510	0.22	16.80			1970	77720

TABLE 7.1.2.2

		ĸ		1	1	2	2	_	_	12	7	7	2	2:	:2	12	14	12	8	8	8	٠
		REFER		61527	51527	61527	61627	51527	51527	51527	61527	51527	51527	51527	51527	61527	51527	51527	86213	86213	86213	91638
		DATE		1963	1963	1963	1963	1963	1963	1963	1963	1963	1963	1963	1963	1963	1963	1963	1973	1973	1973	1973
	-	STAN				i					=	1				6					; 	
	K.	K _o MEAN				i					503	3				74.9	!				i	
		Kelvin)		77.08	74.70*	74.28	66.57	73.02*	73.95*	60.02	74.77*	i	58.44	73.23	71.77	78.91	72.73	1	56.01	68.11*	50.27*	55.45*
		BTAN				2.9		l		L	a 6		<u></u>			9					ı	
	Кирр	K.				69.9					e g	}				61.8					1	
		K. (Kelvin)	0	61.43	62.35	61.16	54.95	59.82	60.21	54.67	58.80	56.73	53.49	60.46	60.39	64.43	61.95	ŀ	40.68*	40.37	40.92*	41.00*
K _c	88	MAX (Kst)	STRAINE	41.80	42.00	41.20	36.10	40.50	40.70	37.00	39.80	38.20	36.20	19.40	19.40	20.70	19.90	;	38.60	38.30	38.90	38.90
2014	GROSS	ONSET (Kel)	BUCKLING OF CRACK EDGES RESTRAINED	i	ı	į	1	ı	:	i	ı	-	i	ı	-	1	:	:	i	ı	38.90	ı
NOM	СК	FINAL (in.) 2a,	CRACKE	1.700	1.620	1.650	1.700	1.650	1.660	1.420	1.740	1	1.410	7.300	7.100	7.400	6.980	ı	0.970	1.020	0.840	0.960
ALUMINUM	CRACK	INIT (fn.) 2a,	LINGOF	1.220	1.240	1.240	1.290	1.230	1.230	1.230	1.230	1.240	1.230	6.490	5.480	5.480	5.480	5.480	0.625	0.625	0.623	0.624
	MEN	THICK (in.) B	BUCK	0.062	0.062	0.062	0.062	0.063	0.062	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.064	0.064	0.064	0.064	0.064	0.064
	SPECIMEN	WIDTH (fn.) W		4.000	4.000	4.000	4.000	4.000	3.950	3.990	3.990	3.990	3.990	18.040	18.040	18.060	18.040	18.050	2.000	2.000	2.000	2.000
		STR (Ket)		83.4	83.4	83.4	83.4	83.4	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	67.5	67.5	67.6	67.6
		SPEC		1		-1	1				7			1	L	7			1	E-	1	
	1001	TEMP (°F)		•		-423					-320					-320				Ę		
	UCT	THICK (in.)		90.06	90.0	90.0	90.0	90'0	90:0	90.0	90'0	90'0	90.0	90.0	90.0	90.0	90.0	90.0	90'0	0.06	90.0	90:0
	PRODUCE	FORM		1	1_	Sheet	1			1	Sheet	1			1_	Sheet	1					
		CONDITION HEAT TREAT				£					T6					T6				2		

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

							¥	ALUMINUM	4UM	2014	κ _c								
	PROI	PRODUCT	150		4	SPECIMEN	MEN	CRACK	CK TH	GROSS	88 88		Kapp			¥,			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Kel)	WIDTH (in.) W	THICK (in.)	(in.)	FINAL (in.)	ONSET (Ksi) G	MAX (Kel)	K (Kat√in)	K	STAN DEV	K _e (Kal√in)	K, MBAN	STAN	DATE	REFER
							BUCKI	ING OF	CRACK E	BUCKLING OF CRACK EDGES RESTRAINED	TRAINE	Q							
		90.0		<u> </u>	67.6	2.000	0.064	0.622	0.850		39.50	41.55*			51.50*			1973	86213
		90.0			67.5	2.000	0.065	0.624	0.860	1	39.80	41.95*			62.36*			1973	86213
Te	Sheet Cont'd	90.0	R.T. Cont'd	Cont'd	67.5	2.000	0.065	0.620	0.860	1	40.10	42.09*	Cont'd	Cont'd	62.76*	Cont'd	Cont'd	1973	86213
		90.0			67.5	2.000	0.065	0.622	0.890	:	40.10	42.18*			54.19*			1973	86213
		90.0			66.2	2.000	0.067	0.625	0.980	i	38.10	40.16*			55.78*			1973	86213
		90.0			65.2	3.980	0.063	1.240	1.600	ı	38.10	56.60*			67.23			1963	61527
		90'0			66.2	3.990	0.063	1.240	1.540	!	38.20	56.73*			65.64*			1963	51527
22	Sheet	90.0	R.T.	<u>_</u>	65.2	3.990	0.063	1.230	1.640	1	36.90	54.62*		i	63.31*	ı	i	1963	51527
		90'0			66.2	3.990	0.063	1.230	1.550	ı	37.80	55.85			65.15*			1963	<i>1</i> 2919
		90:0			65.2	4.000	0.063	1.250	1.550	ı	37.90	56.55*			65.29*			1963	22919
		90'0			68.4	15.810	0.063	9.000	7.020	i	16.40	55.35			62.20			1973	86213
		90.0		l	68.4	15.810	0.064	3.010	3.570	1	27.40	60.95			67.00			1973	86213
75 2	Sheet	90.0	R.T.	<u></u>	68.4	15.810	0.064	4.000	6.230	!	22.50	58.73	299	3.3	69.22	65.0	3.4	1973	86213
		90.0			68.4	15.820	0.064	6.000	7.000	1	16.10	64.33			60.92			1973	86213
		90.0			68.4	15.820	0.064	1.000	1.520	i	42.10	62.89			65.43			1973	86213
		90'0		1	65.2	18.040	0.063	6.490	6.350	:	20.70	64.51			70.87			1963	61527
2 L	Sheet	90.0	R.T.	2	65.2	18.040	0.063	5.490	6.110	-	20.60	64.20	65.2	1.4	68.75	72.0	3.4	1963	51527
		90'0			65.2	18.050	0.063	6.490	6.400	1	20.80	64.82			71.58			1963	61627

* NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

		<u> </u>			_		_	_	·		₆₀	60		80				, ,	<u>,</u>	œ	"	Γ
		REFER		51527	61527	80689	80689	80689	80689	80689	80689	80689	80689	80689	68908	80689	80689	80689	80689	80689	80689	
		DATE		1963	1963	1967	1967	1967	1967	1967	1967	1967	1967	1967	1967	1967	1967	1967	1967	1967	1967	
		STAN			Cont'd							6.3								9,4		
	Kc	K _e MEAN			Cont'd			•				46.6								48.3		
		K _o (Kalvin)		77.84	70.82	36.70	31.79*	40.51	41.37	41.44	62.47	49.14	62.79	41.14	49.28	36.42*	61.08	35.06*	37.47*	43.53	43.17	
		BTAN DEV			Cont'd		L		L	<u> </u>	L	2.9	<u> </u>							4.		_
	Kapp	K,			Cont'd							38.1								39.4		
	K	K (Keivin)		67,62	64.74	28.82*	28.64*	34.47	34.33	34.81	41.08	39.86	39.13	37.96	41.21	30.09*	40.25	29.79*	30.19*	35.26	35.44	
К _С			MINED	21.70	20.80	63.70	63.30	49.90	49.70	60.40	30.50	44.20	43.40	42.10	30.40	66.50	29.90	65.90	66.80	66.20	56.50	_
2014	GROSS		BUCKLING OF CRACK EDGES RESTRAINED																			
	5.5	C (Kel)	K EDGE	1	•	i	:	-	-		-						-	-	-	-		
ALUMINUM	CRACK	FINAL (ln.) 2a,	JF CRAC	6.800	6.300	0.210	0.160	0.410	0.430	0.420	1.400	0.730	0.850	0.580	1.300	0.190	1.390	0.180	0.200	0.380	0.370	
NLUM	CH	INIT (fn.) 2a,	KLINGO	5.490	5.480	0.130	0.130	0.300	0.300	0.300	1.000	0.500	0.500	0.500	1.010	0.130	1.000	0.130	0.130	0.250	0.250	
1	PECIMEN	THICK (in.) B	BUC	0.063	0.063	0.068	0.058	0.058	0.069	0.069	0.060	090'0	0.061	0.061	0.061	0.061	0.061	090.0	090.0	0.061	0.061	
	SPEC	WIDTH (in.) W		18.060	18.060	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.010	6.000	6.000	6.000	9.000	
	£	STR (Kel)		65.2	65.2	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	
		SPEC OR		LT 68 6 8 8 17 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7													1	- <u>1</u>		_		
		TEMP (°F)		R.T.							Ş	OZS:							-	-320		_
		THICK (In.)		90.0	90.0	90.06	90.06	90.0	90.06	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90'0	90.0	
	PRODUCT	FORM		Sheet	Cont'd					<u></u> !		al Superior	!		1				1	Sheet	!	
		CONDITION HEAT TREAT		J.	Cont'd						Ě	9								PT.		_

• NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

		SR.		æ	8	86	38	86	8	98	80	80	80	90	80	80	88	88	80	80689	80	8
		REFER		68908	68908	68908	68908	68908	68908	68908	68908	68908	80689	68908	68908	68908	80689	80689	68908	688	80689	80689
		DATE		1967	1967	1967	1967	1967	1967	1967	1967	1967	1967	1967	1967	1967	1961	1967	1967	1967	1967	1967
		BTAN DEV				Cont'd									3.9	}			-			
	К _с	K _o MEAN				Cont'd									49.7							
		K _o (Kel√in)		50.21	51.72	62.64	45.15*	45.28	46.42	62.19	40.04*	45.61	44.85	55.28	51.92	48.54	47.38	41.50*	40.41*	50.72	57.57	62.49
		STAN DEV				Cont'd									4.7							
	Kapp	K.				Cont'd									41.4							
	1	K. (Kelvin)	D	42.47	43.62	44.00	35.63	38.50	39.48	38.59	29.47*	36.76	33.79	44.43	44.98	42.83	35.29	29.92*	29.74*	45.79	49.78	46.60
К _С	SS	MAX (Kei)	STRAINE	22.30	22.90	23.10	56.80	43.40	44.50	43.50	65.20	67.50	63.90	35.30	16.70	15.90	56.30	66.20	65.80	17.00	27.60	17.30
2014	GROSS	ONSET (Kal)	DGES RE		ı	1	:	ı	:	ŗ		ı	1	1	ı	ı		!	:	-		1
NOM	CK	FINAL (in.) 2a,	BUCKLING OF CRACK EDGES RESTRAINED	2.540	2.550	2.580	0.400	0.690	0.690	0.910	0.240	0.400	0.440	1.530	4.920	4.800	0.450	0.250	0.240	4.650	2.610	4.760
ALUMINUM	CRACK	INIT (fn.) 2a.	TING OF	2.000	2.000	2.000	0.250	0.500	0.500	0.500	0.130	0.260	0.250	1.000	4.000	4.000	0.250	0.130	0.130	4.000	2.000	4.000
A	MEN	THICK (In.) B	BUCK	0.061	0.061	0.061	0.061	0.058	0.058	0.058	0.059	0.069	0.069	0.060	0.060	090.0	0.060	0.060	0.060	0.060	0.060	0.061
	SPECIMEN	WIDTH (in.)		6.000	6.000	6.000	6.000	12.000	12.000	12.000	12.000	12.000	12.010	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000
		STR (Kel)		75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9
		SPEC OR			T.L	Cont'd							<u> </u>		T.L							
	E	TEMP (°F)			-320	Cont'd									-320							
	JCT	THICK (in.)		90'0	90.0	90'0	90:00	90'0	90:0	90.0	90.0	90.0	90.0	90.0	90:0	90:0	90.0	90.0	90:0	90:0	90.0	90:0
	PRODUCT	FORM			Sheet	Cont'd]					Sheet							L
		CONDITION HEAT TREAT			٤	Cont'd									3L							

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

							A	ALUMINUM	NUM	2014	₹ S								
	PROI	PRODUCT				SPECIMEN	MEN	CRACK	CK	GROSS	SS		K _{app}			К _с			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Kel)	WIDTH (fn.)	THICK (in.)	Fig. (ag	PINAL (in.)	ONSET (Ket)	MAX (Kel.)	K (Kei√in)	K WEAN	STAN	K _o (Keivlin)	K _o MEAN	STAN	DATE	REFER
							BUCK	LINGOF	CRACK E	BUCKLING OF CRACK EDGES RESTRAINED	STRAINE	α							
		90.0			75.9	12.000	0.061	2.000	2.220	-	25.10	45.27			47.89			1961	80689
T6 Cont'd	Sheet Cont'd	90.0	-320 Cont'd	T-L Cont'd	75.9	12.000	0.061	1.000	1.560	ı	33.30	41.92	Cont'd	Cont'd	52.68	Cont'd	Cont'd	1967	80689
		0.06			75.9	12.000	0.061	1.000	1.610	-	29.10	36.63			46.80			1967	80689
							BUCKLE	NG OF C	KACK EDC	BUCKLING OF CHACK EDGES NOT RESTRAINED	RESTRAD	NED							
£	9,004	0.12	E	E	64.0	3.000	0.126	1.120	1.760	;	33.30	48.40*			71.21•			1973	86213
01	19000	0.12	<u>:</u>	3	64.0	3.000	0.126	1.090	1.900	!	34.90	49.78*	1	1	81.70*	i	i	1973	86213
¥	Di ete	0.25	£	E	66.0	3.000	0.247	1.100	1.720	1	31.60	45.36			*06:39			1973	86213
2		0.25		Š	65.0	3.000	0.247	1.220	1.810	1	29.20	45.11	45.2	0.2	64.45*	ı	ı	1973	86213
		90.0			81.8	4.000	0.063	1.230	1.370	ı	36.00	53.17			66.99			1963	51527
		90.0			81.8	4.000	0.063	1.210	1.550	ı	36.30	53.07			62.53			1963	51527
TG	Sheet	90.0	-423	7:L	81.8	4.000	0.063	1.230	1.250	;	37.80	65.83	83.1	8:1	56.40	59.1	80 80	1963	61527
		90.0			81.8	4.000	0.063	1.230	1.450	!	34.30	50.66			56.41			1963	51527
		90.0			81.8	4.000	0.064	1.230	1.620	1	35.60	52.58			63.32			1963	51527
		90.0			69.3	4.000	0.062	1.230	1	ı	35.30	52.14						1963	51527
		90.0			69.3	4.000	0.063	1.230	!	1	30.30	44.75	,		ı			1963	51527
3L	Sheet	90.0	-320	7.	69.3	4.000	0.063	1.230	1.740	!	35.90	53.03	61.6	6	67.40*	i	1	1963	51527
		90.0			69.3	4.000	0.063	1.240	1.800	1	36.30	53.89			70.00			1963	51527
		90'0			69.3	4.000	0.063	1.230	1.860	1	36.70	64.21			72.68		,	1963	51527

* NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

	K _C	Ko Ko Ko STAN DATE REFER	MEAN	60.83* 1973 86213	49.80* 1973 86213	46.96• 1973 86213	45.57* 86213	49.03* 1973 86213	50.99*	48.02* 1973 86213	42.77*	46.18* 86213	67.67* 1973 86213	66.49* 1973 86213	60.94*	56.12* 1963 51527	59.25* 1963 51527		55.42* 1963 51527	68.75 1973 86213	59.66 Egg 97 1973 86213	
		BTAN						0.4						0.3			2.0				2.2	
	Керр	K	MEAN					37.3						42.8			49.0				213	
		K (Kelvin)	(Kelvin)	38.26*	38.16*	38.84	38.89*	39,55	39.34*	39.45*	37.52	37.00	42.99	42.61	50.56	49.93	48.74	49.96	45.61	53.51	53.25	
K _c	SS	MAX (Kel)	(Kel)	36.30	36.20	37.00	36.90	37.60	37.40	37.50	35.60	35.10	29.40	29.60	34.20	33.60	32.80	33.80	30.70	24.10	20.40	
2014	GROSS	ONSET (Kai) 0.	(in.) (in.) (in.) (Kei)	ı	i	i	i	i	i	:	ì	ı	i	ı	į	1	:	I	·		:	
NOM	CRACK	FINAL (in.) 2a,	(in.) 2a, RACK ED	0.830	0.910	0.820	0.790	0.850	0.900	0.830	0.760	0.860	1.620	1.580	1.620	1.480	1.650	1.680	1.650	3.550	4.830	
ALUMINUM	CR	INIT (in.) Sa,	NG OF C	0.625	0.625	0.621	0.624	0.623	0.623	0.623	0.625	0.625	1.130	1.110	1.230	1.240	1.240	1.230	1.240	3.000	4.000	
	SPECIMEN	THICK (fn.) B	(fn.) B BUCKL	0.064	0.064	0.064	0.065	0.065	0.065	0.065	0.067	0.067	0.126	0.126	0.063	0.063	0.063	0.063	0.063	0.063	0.064	
	SPEC	WIDTH (In.)	(In.)	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	3.000	3.000	9.970	3.970	3.970	3.980	3.980	15.810	15.810	
	r THY	STR (Kel)	(iau)	64.3	64.3	65.6	64.3	64.3	64.3	65.6	65.6	65.6	62.2	62.2	63.2	63.2	63.2	63.2	63.2	65.4	65.4	
		SPEC						1.5					E	2		1	1:1				T:L	•
	T S ST	TEMP (°F)						R.T.					E	i			R.T.				R.T.	
	ucr	THICK (in.)	(ln.)	90.0	90.0	90.0	90'0	90.0	90.0	90'0	90.0	90.0	0.12	0.12	90'0	90.0	90.0	90.0	90.0	90'0	0.06	
	PRODUCT	FORM	FORM		.	<u> </u>	I	Sheet		I			I	100110		1	Sheet				Sheet	_
		CONDITION HEAT TREAT						£					£	2			ST.				21.	-

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

TABLE 7.1.2.2 (CONCLUDED)

						[V	ALUMINUM	NUM	2014	Kc								
PRODUCT	18	L. C.		4	SPECIMEN	MEN	CRACK	CK	GROSS	88 88		Kapp			K _c	·		
THICK (in.)		TEMP (°P.)	SPEC OR		WIDTH (in.) W	THICK (in.)	INIT (in.) 2a,	FINAL (in.) 2a,	ONSET (Ket) 0.	MAX (Ket)	K (Ket√in)	K,	STAN	K _o (Kelvin)	K, MEAN	STAN	DATE	REFER
						BUCKLIN	VG OF CI	RACK EDG	BUCKLING OF CRACE EDGES NOT RESTRAINED	RESTRAIL	NED							
90.0		R.T.		65.4	15.820	0.064	6.010	6.860	ŀ	14.60	49.32			64.38			1973	86213
90.0		Cont'd	Cont'd	65.4	15.830	0.064	6.000	7.000		15.20	51.28	Cont'd	Cont'd	67.50	Cont'd	Cont'd	1973	86213
0.25		E	i	62.8	3.000	0.247	1.130	1.590	ı	24.60	35.97			47.39*			1973	86213
0.25			3	62.8	3.000	0.247	1.160	1.640	1	24.00	35.75	35.9	0.2	47.65*	1	ı	1973	86213
0.25	٦		1	62.2	4.000	0.248	1.400	2.310	ı	32.00	61.39			+997.2			1973	86213
0.25	10	•	1	62.2	4.000	0.249	1.330	2.120	1	32.80	50.92			72.96*			1973	86213
0.25	18	R.T.	7.	64.3	4.000	0.251	1.330	2.260	ı	33.90	62.63	51.7	9.0	80.38*	i	i	1973	86213
9	0.25			64.3	4.000	0.252	1.400	2.380	ı	32.10	51.55			80.52*			1973	86213
0.25	- R			64.3	4.000	0.252	1.330	2.140	1	33.50	52.01			75.20*			1973	86213
-1	1.00	R.T.	1.7	66.4	20.000	1.000	6.950	9.960	ļ	14.50	51.82	i		68.04	1	i	1973	86213
٦	0.25		I	60.7	4.000	0.250	1.420	2.110	1	26.20	42.48			58.02*			1973	86213
٦,	0.25	•		60.7	4.000	0.250	1.330	1.960	:	27.20	42.23			56.32*			1973	86213
٩l	0.25	R.T.		62.2	4.000	0.252	1.330	1.840	1	27.10	42.07	42.2	0.3	€3.20*	ı	1	1973	86213
0	0.25			62.2	4.000	0.252	1.410	2.140	ı	25.90	41.79			58.14*			1973	86213
٦١	0.25			62.2	4.000	0.252	1.330	1.900	i	27.20	42.23			64.84*			1973	86213
l	1.00	R.T.	T-L	65.8	20.000	1.000	6.940	9.370	!	9.10	32.49	ï	ı	40.55	1	1	1973	86213

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

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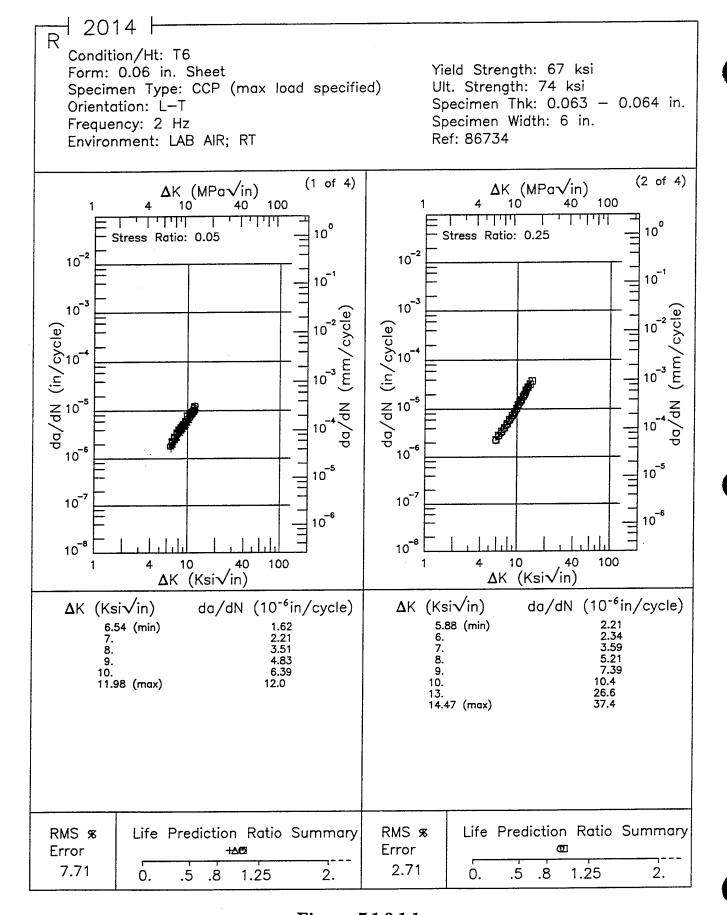


Figure 7.1.3.1.1

┨ 2014 ┠ Condition/Ht: T6 Yield Strength: 67 ksi Form: 0.06 in. Sheet Ult. Strength: 74 ksi Specimen Type: CCP (max load specified) Specimen Thk: 0.063 - 0.064 in. Orientation: L-T Specimen Width: 6 in. Frequency: 2 Hz Ref: 86734 Environment: LAB AIR; RT (4 of 4) (3 of 4)**Δ**K (MPa√in) Δ K (MPa \sqrt{in}) 10 100 10 100 40 $\frac{1}{1}$ لبليليا 10° 10° Stress Ratio: 0.5 Stress Ratio: 0.4 10-2 10-2 10-1 10 1 10⁻³ 10⁻³ 10 -2 da/dN (in/cycle) da/dN (in/cycle) 10 6 10_6 10 5 10⁻⁵ 10⁻⁷ 10⁻⁷ 10 6 10 6 10 8 10⁻⁸ 40 100 10 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) **Δ**K (Ksi√in) da/dN ($10^{-6}in/cycle$) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) 4.97 (min) 5. 6. 7. 1.77 3.10 5.08 (min) 6. 7. 8.87 (max) 11.1 10. 11.62 (max) 25.9 Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % 四 Error Error 4.89 4.20 .5 1.25 2. 0. .8 1.25 2. 0. .8 .5

Figure 7.1.3.1.1 (Concluded)

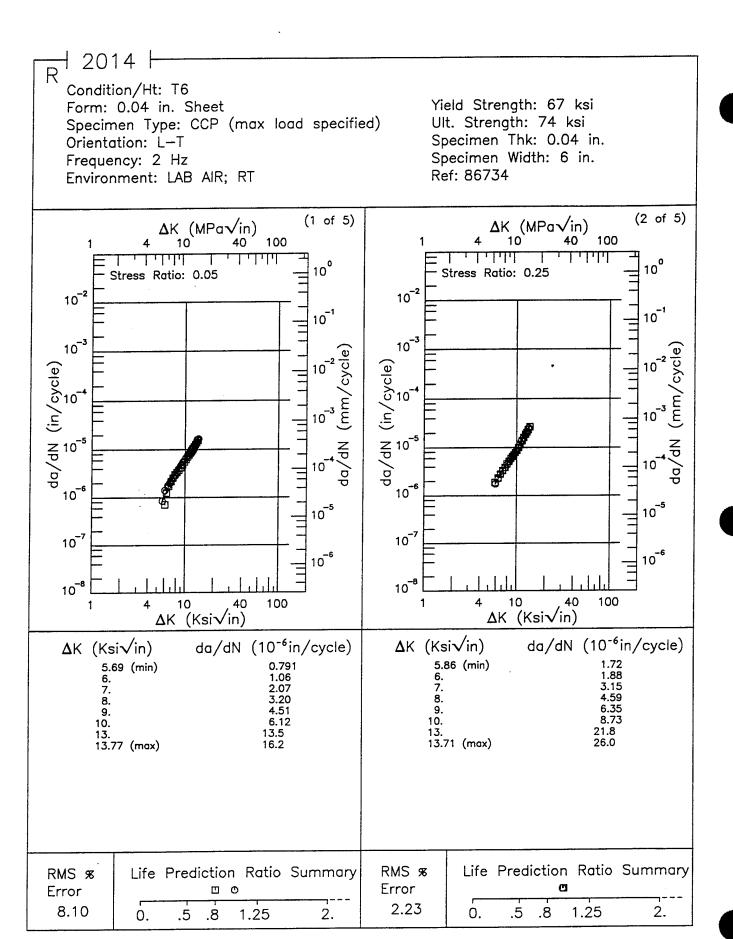


Figure 7.1.3.1.2

1 2014 |R Condition/Ht: T6 Yield Strength: 67 ksi Form: 0.04 in. Sheet Specimen Type: CCP (max load specified) Ult. Strength: 74 ksi Specimen Thk: 0.04 in. Orientation: L-T Specimen Width: 6 in. Frequency: 2 Hz Ref: 86734 Environment: LAB AIR; RT (4 of 5)(3 of 5) Δ K (MPa \sqrt{in}) ΔK (MPa√in) 100 10 40 100 $\frac{1}{1}$ 10° 10° Stress Ratio: 0.4 Stress Ratio: 0.5 10⁻² 10-2 10 1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10⁻⁵ 10 -5 10⁻⁷ 10-7 10⁻⁶ 10 6 10 8 10⁻⁸ 100 10 40 100 40 10 ΔK (Ksi√in) ΔK (Ksi \sqrt{in}) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 4.13 (min) 5. 6. 7. 8. 4.82 (min) 5. 6. 7. 8. 0.683 1.19 1.41 2.68 4.09 6.01 9. 9.85 (max) 8.79 (max) 8.68 11.5 Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error ╝ Error 5.11 5.17 1.25 0. .5 .8 2. 1.25 0. .5 .8 2.

Figure 7.1.3.1.2 (Continued)

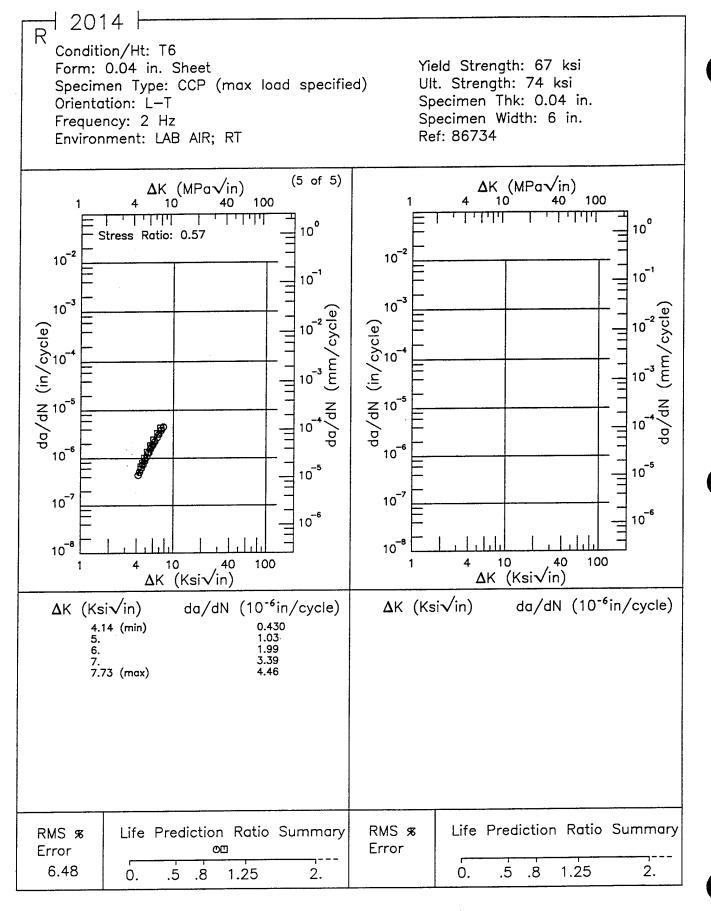


Figure 7.1.3.1.2 (Concluded)

1 2014 |R

Condition/Ht: T6 Form: 0.06 in. Sheet

Specimen Type: CCP (max load specified)

Orientation: T-L Frequency: 2 Hz

Environment: LAB AIR; RT

Yield Strength: 67 ksi Ult. Strength: 74 ksi Specimen Thk: 0.063 in. Specimen Width: 6 in.

Ref: 86734

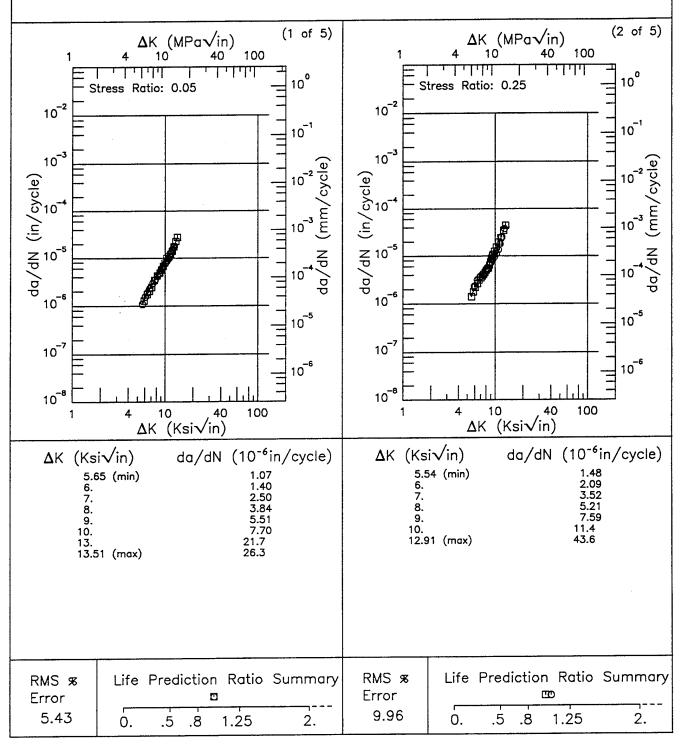


Figure 7.1.3.1.3

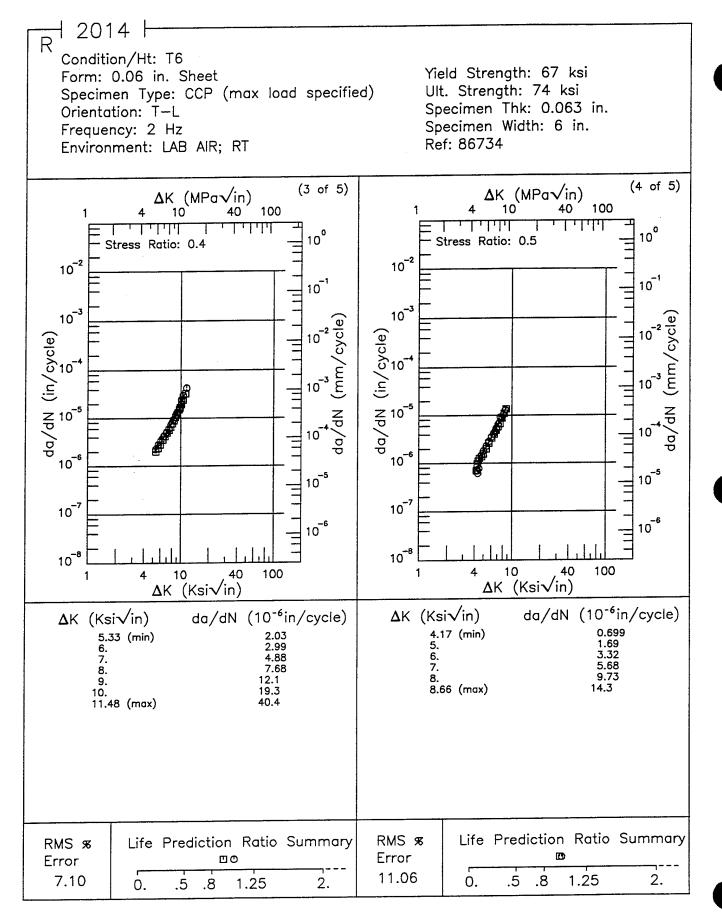


Figure 7.1.3.1.3 (Continued)

Condition/Ht: T6 Form: 0.06 in. Sheet Yield Strength: 67 ksi Specimen Type: CCP (max load specified) Ult. Strength: 74 ksi Specimen Thk: 0.063 in. Orientation: T-L Specimen Width: 6 in. Frequency: 2 Hz Ref: 86734 Environment: LAB AIR; RT (5 of 5) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 10 100 10 100 40 1 1 1 1 1 1 10° 10° Stress Ratio: 0.57 10-2 10⁻² 10-1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) 10-2 da/dN (in/cycle) 10⁻⁶ 10-6 10_5 10⁻⁵ 10⁻⁷ 10⁻⁷ 10 6 10⁻⁶ 10⁻⁸ 10 8 10 40 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) Δ K (Ksi \sqrt{in}) da/dN (10⁻⁶in/cycle) **Δ**K (Ksi√in) $da/dN (10^{-6}in/cycle)$ 3.74 (min) 0.347 0.517 6. 7. 7.19 (max) 6.27 Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error 00 9.78 Ó. .5 .8 1.25 2. 0. .5 8. 1.25 2.

1 2014 H

Figure 7.1.3.1.3 (Concluded)

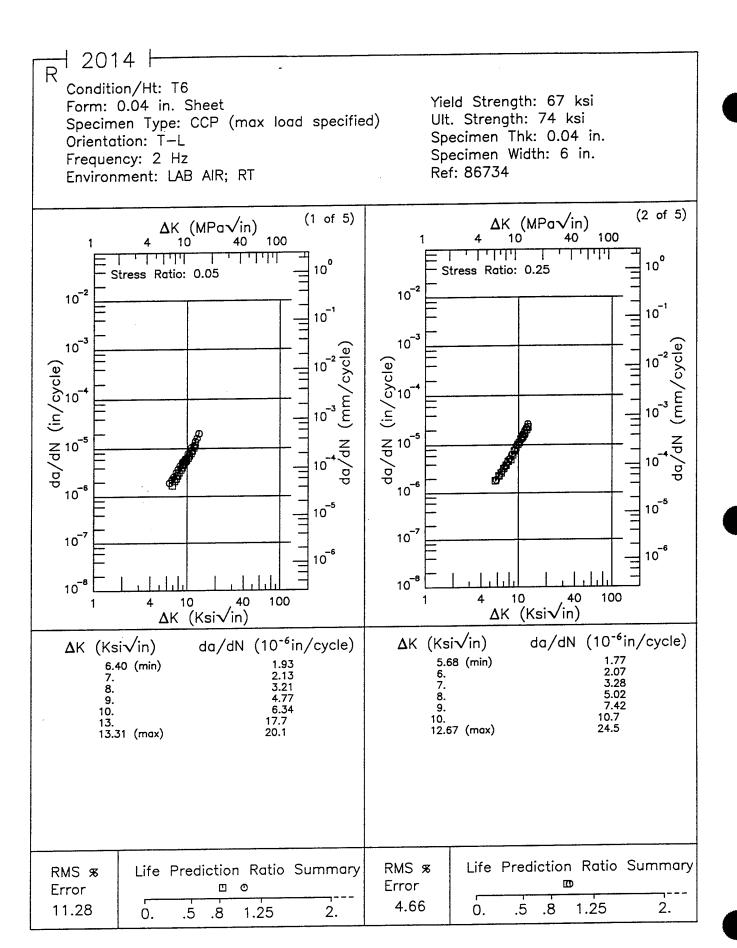


Figure 7.1.3.1.4

H 2014 H Condition/Ht: T6 Yield Strength: 67 ksi Form: 0.04 in. Sheet Ult. Strength: 74 ksi Specimen Type: CCP (max load specified) Specimen Thk: 0.04 in. Orientation: T-L Specimen Width: 6 in. Frequency: 2 Hz Ref: 86734 Environment: LAB AIR; RT (4 of 5) (3 of 5) Δ K (MPa \sqrt{in}) $\Delta K (MPa\sqrt{in})$ 100 10 10 100 40 1 1 1 1 1 1 ויויויו 10° 10° Stress Ratio: 0.5 Stress Ratio: 0.4 10⁻² 10-2 10-1 10⁻¹ 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10 -6 10-6 10 5 10-5 10⁻⁷ 10-7 10⁻⁶ 10 6 10⁻⁸ 10⁻⁸ 40 10 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) Δ K (Ksi \sqrt{in}) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) 4.88 (min) 5. 6. 7. 8. 1.60 3.01 5.13 (min) 6. 7. 5.13 7.90 4.01 8.66 (max) 6.13 10. 11.25 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % □ 0 Error Error 6.95 4.74 Ö. 1.25 2. 0. .5 .8 1.25 2. .5 .8

Figure 7.1.3.1.4 (Continued)

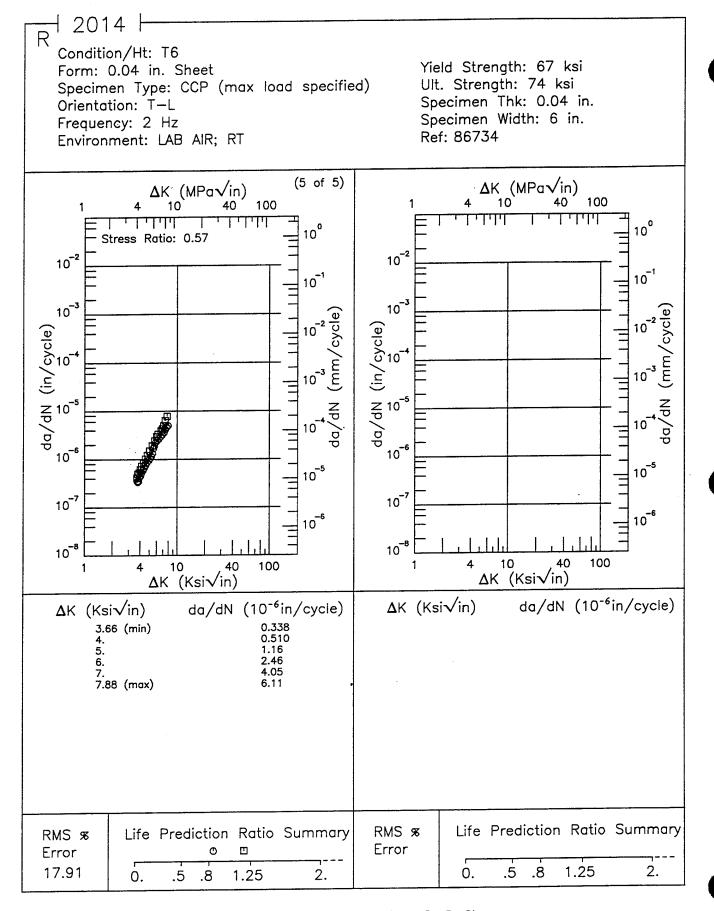


Figure 7.1.3.1.4 (Concluded)

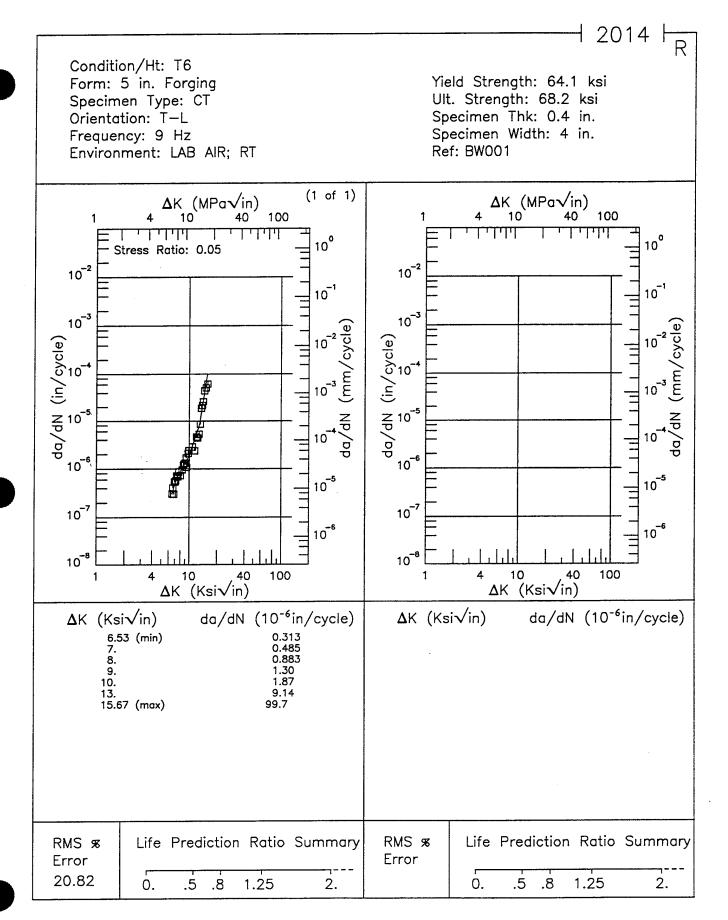


Figure 7.1.3.1.5

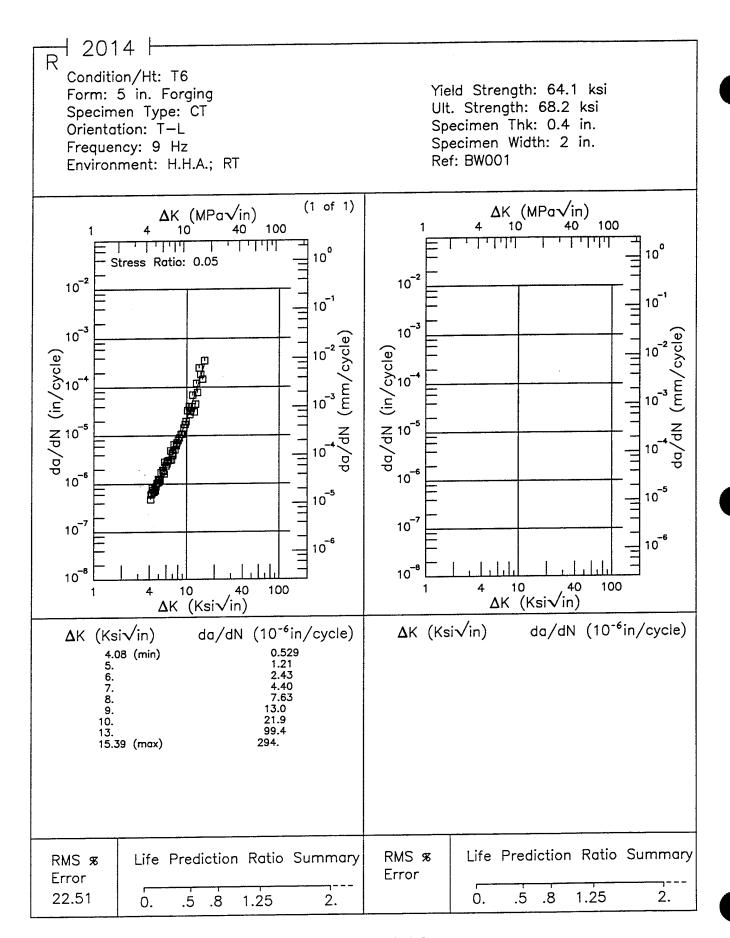


Figure 7.1.3.1.6

1 2014 |R Condition/Ht: T6 Yield Strength: Form: 5 in. Forging Specimen Type: CCP (max stress specified) Ult. Strength: Specimen Thk: 0.4 in. Orientation: L-T Specimen Width: 2 in. Frequency: 9 Hz Ref: BW001 Environment: H.H.A.; RT (1 of 1) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 10 100 40 10 40 100 1 1 1 1 1 1 1 10⁰ Stress Ratio: -1.0 10-2 10-2 10-1 10 10⁻³ 10⁻³ da/dN (in/cycle) 10-2 da/dN (in/cycle) 10⁻⁶ 10-6 10⁻⁵ 10 -5 10⁻⁷ 10⁻⁷ 10 -6 10 6 10⁻⁸ 10⁻⁸ 40 100 10 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN ($10^{-6}in/cycle$) ΔK (Ksi√in) 4.85 (min) 5. 6. 7. 8. 6.80 10. 13. 16. 21.09 (max) 52.4 RMS % Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % Error Error 7.20 Ò. 1.25 0. .5 .8 1.25 2. .5 .8 2.

Figure 7.1.3.1.7

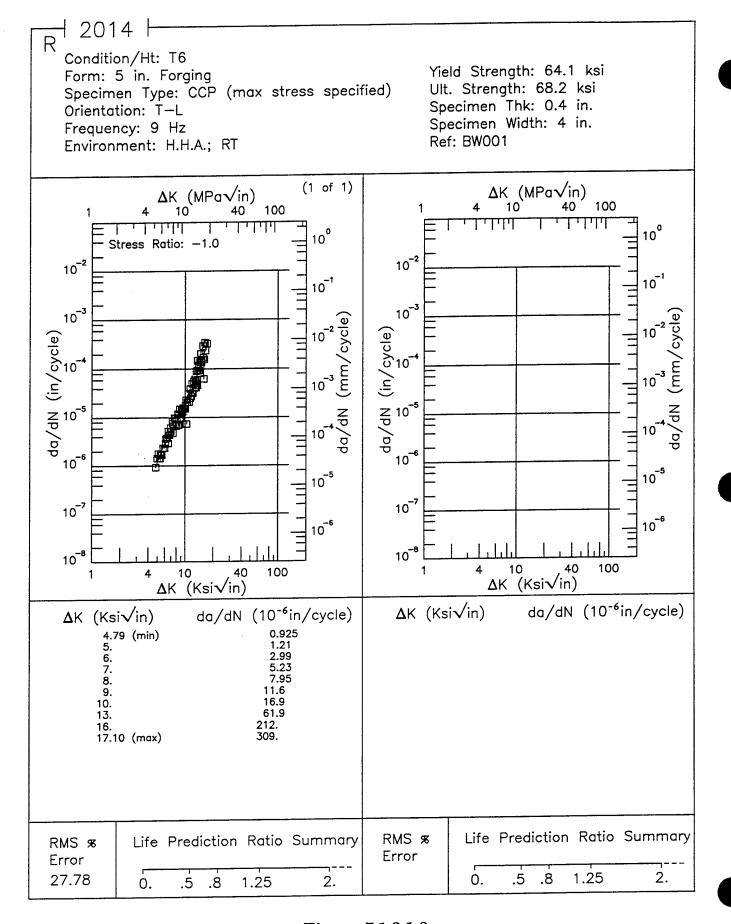


Figure 7.1.3.1.8

1 2014 F

Condition/Ht: T6

Form: 1 in. Rolled Bar

Specimen Type: CCP (max load specified)

Orientation: L—T Frequency: 5.2 Hz

Environment: LAB AIR; RT

Yield Strength: 60.2-60.5 ksi Ult. Strength: 66-67.3 ksi Specimen Thk: 0.253-0.26 in. Specimen Width: 7.5-7.517 in.

Ref: 86213

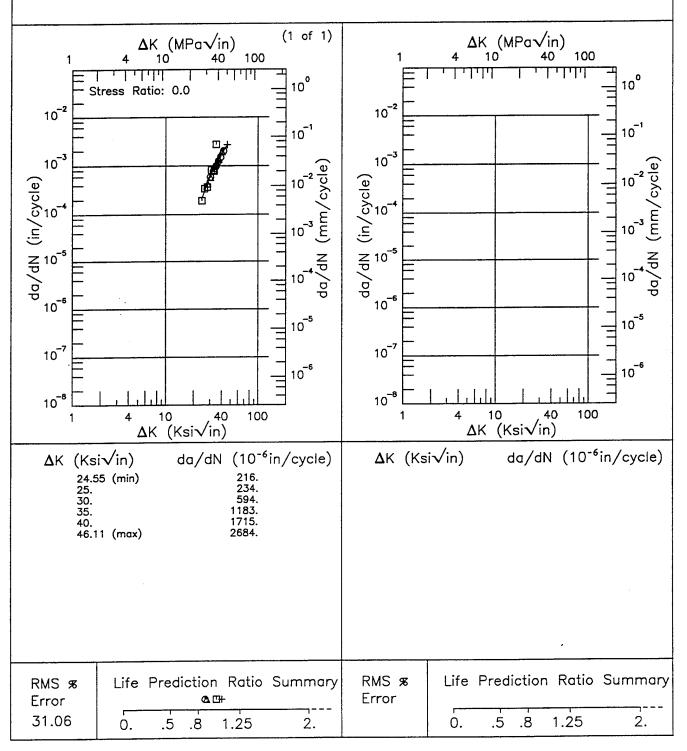


Figure 7.1.3.1.9

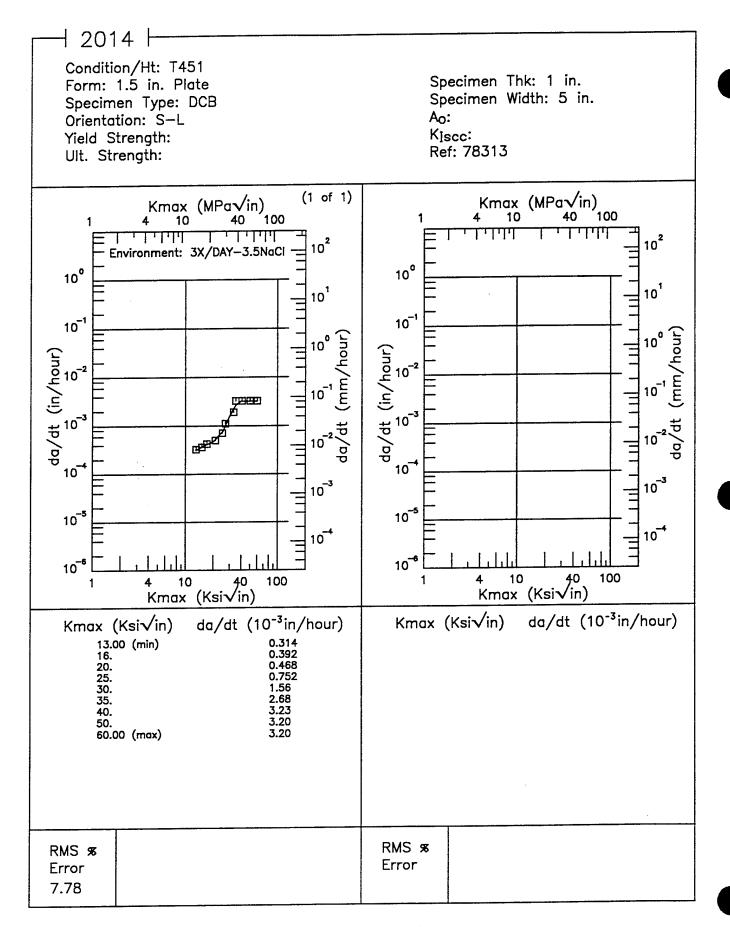


Figure 7.1.3.2.1

1 2014 1

Condition/Ht: T651 Form: 2 in. Plate Specimen Type: DCB Orientation: S-L Yield Strength:

Ult. Strength:

Specimen Thk: 1 in. Specimen Width: 5 in.

A₀: K_{Iscc}: Ref: 78313

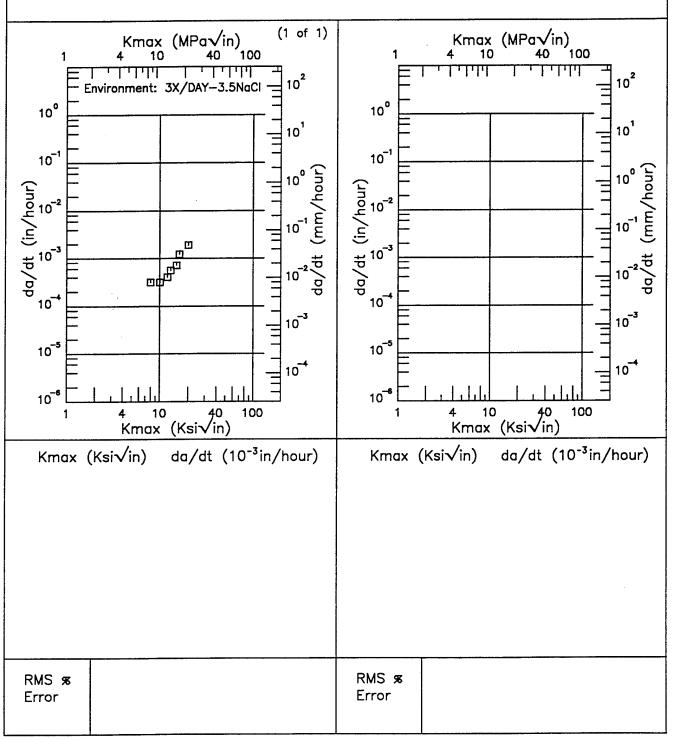


Figure 7.1.3.2.2

K_{lscc} SUMMARY FOR ALUMINUM ALLOY 2014

	,		~	Yield		S	Specimen		Prod		1	•	Test		
Condition/ Heat Treat	Form	Temp (°F)	Spec Or.	Str (Ksi)	Envir.	Design		Width Thick (in)	Thk (in)	Crack (in)	Thk (in) (Ksivin) (Ksivin)	Ksivin)	Time (min)	Test Date	Refer
Te	F	R.T.	S-L	61	S.S.W.	CANT 2	2	1	8		19	16		1972	1972 82675
					Industrial Atm	LO	2	1	2.5	:	18.7	7	ŀ	1973	88998
T651	д	R.T.	S-L	59.6	Salt-Dichromate- Acetate	5	2	1	2.5	i	18.7	7	1	1973	86688
					Seacoast Atm	CT	87	-	2.5	i	18.7	7	1	1973	88998

TABLE 7.2.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS FOR ALUMINUM 2000/6000 SERIES ALLOY 2020 AT ROOM TEMPERATURE

Duoduot					$K_{I\!\!c}$ ($K_{Ic}~(ksi\sqrt{in})$			AGE:	
Form	Condition/Heat Treatment			5	Specimen Orientation	Orient	ation			
			L-T			\mathbf{r} .			S-L	
		Mean K _{re}	Std Dev	ď	Mean K _{te}	Std Dev	и	Mean K _{te}	Std Dev	u
Plate	T651	23	2.4	8	17.2	0.3	4	:	:	:

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2020 AT ROOM TEMPERATURE

ORIENTATION: L-T

ENVIRONMENT: Lab Air

				ALL VALCE TATELLY A. LONG THE	44 4 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	. True	
					ECGP (10.6 intente)	6 intermely)	
CONDITION	PRODUCT		FREG			(and other	
HEAT TREATMENT	FORM	#	(HZ)		ΔK Level (Ksiylm)	(Ksivin)	
				28 80	991	600 500	1000
T6	SHEET	·o	13.3		*	103.95	
• #************************************		-0.5	5.2		3.4		
1001	FLATE	0.	5.2		3.41		

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2020 AT ROOM TEMPERATURE

ORIENTATION: T-L

ENVIRONMENT: H.H.A.

			10.0 20.0 50.0 100.0	
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			₩ ₹	
	_		× 1	
	FCGR (10% in/cycle)			
	ğ	43/		
	€`	ΔΚ Level (Kstyln)	2	
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	9	90		
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			5.0	0.7
				
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	-	,		
	FREG	(Hz)		
	•			25
	2.	_	 	
				
			 	
		*	 	0.33
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	7.	FORM	 	
	× ×	2		63
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	Z	5		
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		HEAT TREATMENT		
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			200000000	

	K _I c	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	20.50	19.90 20.1 0.3 1973 86213		0.22 22.40 1973 86213	0.17 19.70 1973 86213	0.18 20.90 1973 86213	0.24 23.80 1973 86213	0.22 22.90 1973 86213	0.31 27.20 23.0 2.4 1973 86213	0.23 23.60 1973 86213	0.26 24.80 1973 86213	0.19 21.10 86213	0.12 17.00 1973 86213	0.12 16.80 1973 86213	0.12 17.40 17.2 0.3 1973 86213	0.12 17.50 1973 86213	0.18 20.30 1973 86213	0.22 22.80 919 14 1973 86213		0.12 17.00 1973 86213	0.13 17.80 17.8 0.4 1973 86213		0.11 15.30 86213	1919
$\mathbf{K}_{\mathbf{I_o}}$	CRACK		0.745	0.728	0.697	0.747	1.413	1.390	1.460	1 0.967	3 1.400	3 1.450	3 1.420	1.007	3 1.526	3 1.560	r 0.964	r 1.024	r 0.963	r 0.943	r 0.950	r 1.015	T 1.020	T 1.021	T 0.506	-
UM 2020	SPECIMEN	THICK (in.) DESIGN B	0.751 CT	0.752 CT	0.752 CT	0.652 NB	1.376 NB	1.355 NB	1.375 NB	0.999 CT	1.375 NB	1.375 NB	1.376 NB	0.999 CT	1.379 NB	1.378 NB	0.999	0.999 CT	1.000 CT	1.000 CT	1.001 CT	1.002 CT	1.002 CT	1.001	0.500 CT	
ALUMINUM	S	WIDTH (In.)	1.500	1.500	1.500	1.500	3.000	3.000	3.000	2.000	3.000	3.000	3.000	2.000	3.000	3.000	1.990	2.000	2.000	2.000	2.000	2.000	2.000	2.000	066'0	
		YIRLD STR (Kel)	75.5	75.5	75.5	75.5	76.3	77.0	77.5	77.5	77.5	77.5	77.5	77.5	77.4	77.5	78.4	78.4	76.3	76.3	76.3	77.4	77.4	77.4	74.4	
		SPEC		L-I		LT					3					i	<u> </u>			LT			1:			0
		TEST TEMP (F)		98		R.T.				Ē	ž					É	; *		,	8			- 88			æ
	UCT	THICK (in.)	0.78	0.78	0.78	69'0	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	
	PRODUCT	FORM		Plate		Extrusion				Ē	Flate					Į.	181			Plate			Plate		1	Diete
		CONDITION		TG		16				1000	1691					1306	1001			T651			T651		ì	-

TABLE 7.2.2.2

		REFER		86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213
		DATE H		1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973
		STAN DEV				 0.2				1.3			2.9				9.9				8.0	1
	Kc	K _c 8			-	34.6				30.2			36.9				30.5				27.8	1
	1	K _e (Kei√in) M		41.62	35.56	41.08	26.39	28.41	31.05	29.28	40.98	34.46	36.99	35.28	35.31	36.43	33.98	23.71	22.87	27.21	28.34	31.39
				41	35			28	31		40	34		36	36	š			2.	2,	9.0	
		STAN I DEV				3.1				0.8			1.5				2.8				-	
	Керр	MEAN				29.6				29.1	•		36.1				25.9				26.9	i
		K (Kalvin)	VED	32.40	31.14	31.91	25.72	26.88	29.72	28.56	37.75	34.46	36.99	35.28	27.98	28.61	26.98	22.87	22.87	26.40	27.47	31.39
K _c	SS	MAX (Kel) Ge.	KESTRAII	30.80	29.60	30.40	24.40	25.50	21.10	19.90	17.00	10.20	16.60	27.80	26.60	27.20	25.60	21.70	21.70	17.40	19.50	9.30
2020	GROSS STRESS	ONSET (Kai) o	BUCKLING OF CRACK EDGES NOT RESTRAINED	ì	i	ı	i	I	1	ı	ı	ı	:	ı	•	i	i	i	i	i		i
MOM	CRACK	FINAL (in.) 2s,	SACK EDG	0.890	092.0	0.890	0.650	0.680	1.140	1.140	3.480	6.010	3.020	1.020	0.870	0.880	0.870	0.660	0.625	1.240	1.120	6.000
ALUMINUM	CR4 LEN	INIT (in.) 2s.	GOFCI	0.622	0.622	0.621	0.625	0.625	1.070	1.100	3.000	6.010	3.020	1.020	0.622	0.622	0.624	0.625	0.625	1.190	1.070	6.000
F	MEN	THICK (in.) B	SUCKLIF	0.062	0.062	0.062	0.064	0.064	0.061	0.062	0.063	0.063	0.063	0.063	0.062	0.062	0.062	0.064	0.064	0.061	0.062	0.063
	SPECIMEN	WIDTH (In.) W		2.000	2.000	2.000	2.000	2.000	3.000	3.000	15.800	15.810	15.810	15.820	2.000	2.000	2.000	2.000	2.000	3.000	3.000	15.810
		STR (Kei)		75.9	75.9	75.9	77.0	77.0	75.9	75.9	76.9	76.9	76.9	76.9	75.8	75.8	75.8	76.0	76.0	75.8	75.8	75.6
		SPEC			·	1.7			į	1.1			7				T:L			i	Ι·Γ	T-L
	5	TEMP (°F)				R.T.			6	R. I.		į	K.T.				R.T.			Ē	K. I.	R.T.
	UCT	THICK (in.)		90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90:0	90.0	90.0	90.0	0.06	90.0	90.0	90.0	0.06	0.06	90:0
	PRODUCT	FORM		<u>l</u>		Sheet	!		!	Sueet			Sheet				Sheet			I	Sheet	Sheet
		CONDITION HEAT TREAT				22			}	9.			9.				T6			2	0	116

TABLE 7.2.2.2 (CONTINUED)

					:		AL	ALUMINUM		2020	Kc								
	PROI	PRODUCT				SPECIMEN	MEN	CRACK	CK	GROSS	88		Kapp			К _С			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Kel)	WIDTH (In.)	THICK (in.) B	INIT (in.)	FINAL (in.)	ONSET (Kel)	MAX (Ket)	K (Kelvin)	K MEAN	STAN	K _o (Kstvin)	K _e MEAN	STAN	DATE	REFER
						Œ	UCHLING	3 OF CR	ACK EDG	BUCKLING OF CRACK EDGES NOT RESTRAINED	ESTRAIN	ŒD.							
. doi:	į	97'0	Ē		77.4	3.000	0.255	1.000	1.310	:	16.40	22.09			26.74			1973	86213
1991	Flate	0.25	K.T.	17	77.4	3.000	0.256	1.170	1.420	1	15.00	22.48	22.3	0.3	26.11	26.4	9.4	1973	86213
		0.25		1	77.4	4.000	0.256	1.330	1.700	:	14.60	22.67			26.92			1973	86213
T651	Plate	0.25	R.T.	7	77.4	4.000	0.256	1.330	1.330	1	14.70	22.82	22.2	6.0	22.82	24.2	2.3	1973	86213
		0.25			77.4	4.000	0.256	1.480	1.660	1	12.70	21.18			23.00			1973	86213
		1.00			76.1	20.000	1.000	7.000	8.600	ı	7.60	27.29			31.62			1973	86213
		1.00			76.1	20.000	1.000	7.000	10.050	ı	7.00	25.14			33.14			1973	86213
		1.00			76.1	20.000	1.000	7.000	9.040	ı	7.50	26.93			32.45			1973	86213
	-	1.00			76.1	20.000	1.000	7.000	9.080	ı	7.50	26.93			32.57			1973	86213
		1.00			76.3	20.000	1.000	7.000	7.600	i	7.50	26.93			28.49			1973	86213
T651	Plate	1.00	R.T.	1.7	76.3	20.000	1.000	7.000	8.850	1	7.60	27.29	26.2	1.6	32.33	30.5	2.5	1973	86213
		1.00			76.3	20.000	1.000	7.000	8.500	:	7.50	26.93			30.92			1973	86213
		1.00			76.3	20.000	1.000	7.000	8.400	:	7.60	27.29			31.06			1973	86213
		1.00			77.5	20.000	1.000	7.000	8.450	ı	6.90	24.78			28.32			1973	86213
		1.00			77.5	20.000	1.000	7.000	8.500	-	7.30	26.21			30.10			1973	86213
		1.00			77.5	20,000	1.000	7.000	7.910	:	6.30	22.62		-	24.63			1973	86213

TABLE 7.2.2. (CONTINUED)

							AL	ALUMINUM	UM	2020	Кc								
	PROI	PRODUCT	Į			SPECIMEN	MEN	CRACK	Ж	GROSS	38 88		Керр			Кc			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Kel)	WIDTH 7	THICK (in.)	INIT F	FINAL (In.)	ONSET (Kel)	MAX (Kai)	K. (Kelvin)	MEAN	STAN	K _o (Kei√in)	K, MEAN	STAN	DATE	REFER
						B	UCKLING	FOFCRA	CK EDG	BUCKLING OF CRACK EDGES NOT RESTRAINED	ESTRAIN	ŒĎ							
		0.12		I	77.4	3,000	0.126	1.100	1.140	ı	15.90	22.82			23.40			1973	86213
		0.12			77.4	3.000	0.126	1.090	1.280	ı	15.70	22.39			25.15			1973	86213
		0.12			77.5	3.000	0.126	1.080	1.110	i	15.90	22.54			22.97			1973	86213
		0.12			77.4	3.000	0.127	1.100	1.280	ı	14.50	20.81			23.23			1973	86213
		0.12			77.5	3.000	0.127	1.080	1.180		15.70	22.25			23.67			1973	86213
Ì		0.12	Ę		77.5	3.000	0.127	1.080	1.350	-	17.10	24.24			28.56			1973	86213
1691	Super	0.12		I	77.5	3.000	0.127	1.090	1.170	:	17.00	24.25	21.8	1.5	25.48	23.5	2.4	1973	86213
		0.12		l	78.4	3.000	0.127	1.090	1.100	1	13.30	18.97			19.09			1973	86213
		0.12		I	78.4	3.000	0.127	1.070	1.150	i	14.60	20.57			21.62			1973	86213
		0.12		1	78.4	3.000	0.127	1.090	1.090	ı	14.60	20.83			20.83			1973	86213
		0.12		I	78.4	3.000	0.127	1.080	1.320	ï	14.90	21.12			24.44			1973	86213
		0.12			77.4	3.000	0.128	1.100	1.280	!	14.80	21.24			23.71			1973	86213
		0.25			78.0	3.000	0.256	1.120	1.140	ı	10.70	15.55			15.74			1973	86213
1651	Plate	0.25	R.T.	1.	78.0	3.000	0.256	1.000	1.000	i	15.00	20.20	17.2	2.6	20.20	17.2	2.6	1973	86213
		0.25			78.0	3.000	0.256	1.140	1.140	ı	10.70	15.74			15.74			1973	86213
5	E	0.25	Ę		78.0	4.000	0.256	1.330	1.330	1	13.50	20.96			20.96			1973	86213
1601	Flate	0.25	K.I.	T-F	78.0	4.000	0.257	1.330	1.330	i	13.40	20.80	20.9	0.1	20.80	20.9	0.1	1973	86213

TABLE 7.2.2.2 (CONCLUDED)

						AL	ALUMINUM	NOM	2020	K _C								
1	1	5		1	SPECIMEN	MEN	CRACK	СК ЭТН	GROSS STRESS	SS		Kapp			K c	,		
FORM THICK (°F) OR (Kai) (ii	SPEC STR OR (Kel)	STR (Kal)		# E M	WIDTH (In.)	THICK (in.)	INIT (in.) 2a,	FINAL (in.) 2a,	ONSET (Kei)	MAX (Kel)	K (Ketvin)	MEAN	STAN	K _e (Ket√in)	K _o MEAN	STAN	DATE	REFER
					•	UCKLIN	GOFCR	ACK EDG	BUCKLING OF CRACK EDGES NOT REFITAINED	ESTRAIN	ŒD							
1.00				20.0	8	1.000	7.000	7.000	1	6.40	19.39			19.39			1973	86213
1.00	一	一	一	800	8	1.000	7.000	7.000	i	6.60	20.11			20.11			1973	86213
1.00	-	-	-	20.00	8	1.000	7.000	7.000	1	6.90	21.19			21.19			1973	86213
1.00	┪	┪	┪	20.00		1.000	7.000	7.000	1	2.60	20.11			20.11			1973	86213
1.00				20.000		1.000	7.000	7.000	i	6.40	19.39			19.39			1973	86213
1.00	77.5	77.5	\dashv	20.000		000.1	7.000	7.000	1	5.40	19.39			19.39			1973	86213
1.00	77.5	77.5	\dashv	20.000		1.000	7.000	7.000	į	6.40	19.39	19.4	8.0	19.39	19.4	9.0	1973	86213
1.00	-	-	-	20.00		1.000	7.000	7.000	1	6.50	19.75			19.75			1973	86213
1.00				20.00	٦	1.000	7.000	7.000	:	6.20	18.67			18.67			1973	86213
1.00	\dashv	\dashv	\dashv	20.00		1.000	7.000	7.000	1	5.30	19.03			19.03			1973	86213
1.00				20.0	8	1.000	2.000	7.000	i	6.10	18.31			18.31			1973	86213
1.00				20.0	8	1.000	2.000	7.000	1	5.10	18.31			18.31			1973	86213

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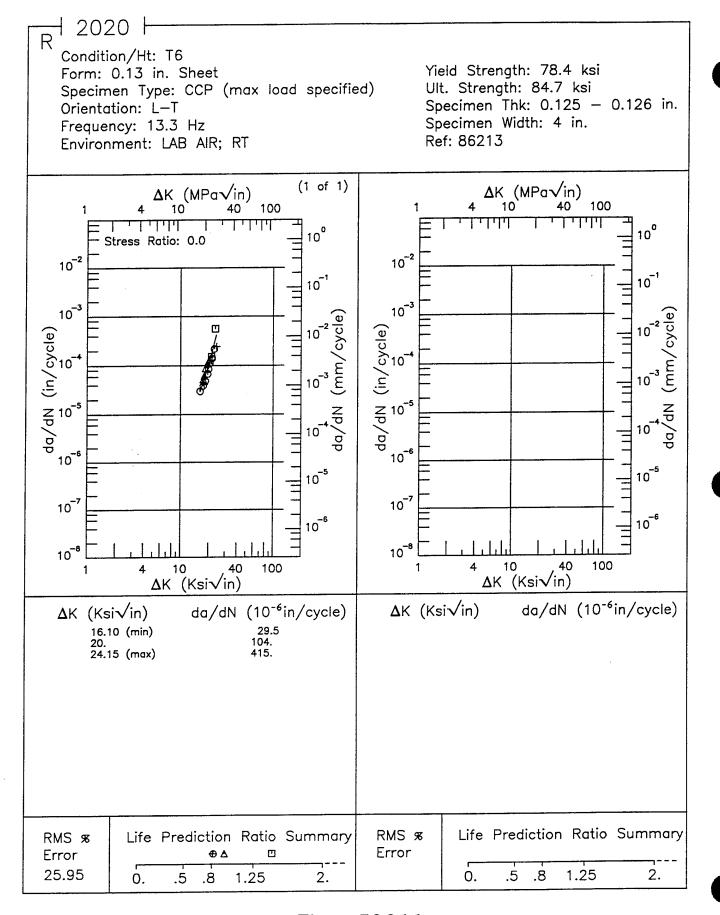


Figure 7.2.3.1.1

Condition/Ht: T651 Yield Strength: Form: 1.28 in. Plate Ult. Strength: Specimen Type: CT Specimen Thk: 0.248 in. Orientation: T-L Specimen Width: 2.5 in. Frequency: 25 Hz Ref: AL002 Environment: H.H.A.; RT (1 of 1) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 10 100 40 100 10 10⁰ 11111 100 Stress Ratio: 0.33 10-2 10 -2 10 1 10 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10⁻⁵ 10 -5 10⁻⁷ 10 10 6 10-6 10⁻⁸ 10 8 100 10 40 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN ($10^{-6}in/cycle$) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 2.68 (min) 3. 3.5 0.0282 0.0612 0.148 4. 5. 6. 7. 8. 10. 11.13 (max) 40.5 Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 44.51 .5 8. 1.25 2. 0. Ó. .5 .8 1.25 2.

1 2020 H

Figure 7.2.3.1.2

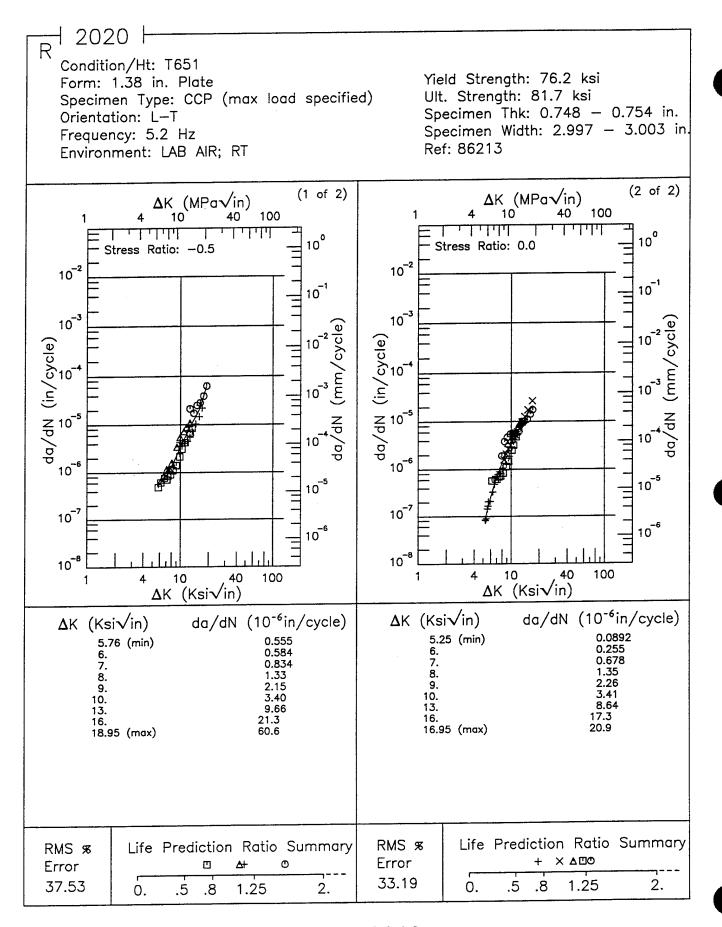


Figure 7.2.3.1.3

TABLE 7.2.3.3

K_{Iscc} SUMMARY FOR ALUMINUM ALLOY 2020

-	Test	7	Yield		S	pecimen		Prod		;		Test			
E S	mp F)	Temp Or. (Ksi)	Str (Ksi)	Envir.	Design	Width (in)	Thick (in)	Thk (in)	Thk (in) (in)	Ko (Ksi√in)	K _{lace} (Ksi√in)	Time (min)	Test Date	Reference	
~	Ŧ.	R.T. S.L	09	3.5% NaCl	DCB	7	П	-	i	13	6	i	1968	84331	

					A	ALUMINUM	NOM	2020	2020 (ALCLAD)	[AD)	К _С							
	PRODUCT	LO AL	<u> </u>		SPECIMEN	MEN	CRACK	CK TH	GROSS	88 88		Карр			К _с			
FORM	THICK (ln.)	TEMP (°F)	SPEC	STR (Kel)	WIDTH (in.)	THICK (in.)	INIT (In.)	FINAL (in.) 2a,	ONBET (Kst) 0,	MAX (Kel)	K (Kelvin)	K	STAN DEV	Ko (Kei√in)	K, MEAN	STAN	DATE	REFER
∭						BUCKLIN	TG OF C	RACK RD	BUCKLING OF CRACK RDGFS NOT RESTRAINED	RESTRA	NED							
	0.12			68.6	2.980	0.122	0.988	1.350	ı	23.10	30.90			38.65			1973	86213
	0.12		!	68.6	3.000	0.122	1.100	1.410	1	22.50	32.30			38.94		·	1973	86213
	0.12		I	68.6	3.000	0.122	1.290	1.610	ı	20:20	32.55			39.39			1973	86213
Sheet	0.12	R.T.	5	68.6	2.970	0.123	0.986	1.550	ì	23.10	30.83	31.8	6:0	43.63	402	8.8	1973	86213
	0.12		I	68.6	2.970	0.123	0.990	1.570	ŀ	24.00	32.16			45.89			1973	86213
	0.12			68.6	3.000	0.123	1.000	1.260	!	24.50	33.00			38.78			1973	86213
	0.12			68.6	3.000	0.123	1.000	1.250	ı	23.00	30.98			36.18			1973	86213
	90.0			68.0	15.800	0.062	4.000	4.130		13.30	34.72			35.38			1973	86213
Sheet	90'0	R.T.		68.0	15.800	0.062	3.990	1		14.10	36.76	34.6	2.2	1	34.1	1.8	1973	86213
	90.0			68.0	15.800	0.063	3.990	4.090	1	12.40	32.32			32.80			1973	86213
	0.12			68.4	3.000	0.121	1.100	1.380	ı	15.90	22.82			27.03			1973	86213
	0.12			68.4	2.960	0.122	0.993	1.540	ı	18.90	25.37	,		35.54			1973	86213
	0.12			68.4	2.970	0.122	0.983	1.500	1	19.10	25.46			35.01			1973	86213
10	0.12	E	Ē	68.4	2.970	0.122	0.989	1.500	ı	18.10	24.22	· · · · · ·		33.17		. .	1973	86213
Ē	0.12	i		68.4	2.970	0.122	0.997	1.540	ı	17.90	24.08	24.1	1.3	33.61	30.4	9.0	1973	86213
	0.12			68.4	3.000	0.122	1.110	1.310	ı	15.00	21.67			24.46			1973	86213
	0.12			68.4	3.000	0.123	1.000	1.000	1	18.00	24.24			24.24			1973	86213
	0.12			68.4	3.000	0.123	1.000	-	:	18.40	24.78			!			1973	86213
	90.0			67.2	15.800	0.064	4.020	;	;	12.10	31.68			i	· · · · · · · · · · · · · · · · · · ·		1973	86213
Sheet	90'0	R.T.	13	67.2	15.820	0.064	4.010	4.400	;	12.60	32.94	32.2	9.6	34.80	33.9	1.2	1973	86213
	0.06			67.2	15.820	0.064	4.000	4.200	ı	12.30	32.11			33.04			1973	86213

TABLE 7.4.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS FOR ALUMINUM 2000/6000 SERIES ALLOY 2021 AT ROOM TEMPERATURE

Product					K_{Ic}	$K_{lc}~(ksi\!\sqrt{in})$	<u>a</u>)			
Form	Condition/Heat Treatment			U 2	pecime	Specimen Orientation	ıtation			
			L-T			T-L			S·L	
		Mean K _{re}	Std Dev	u	Mean K _{le}	Std Dev	u	Mean K _{le}	Std Dev	ч
	T81	27.	9.0	3	:	:	:	:	!	:
Plate	T81 REPAIR WELD + AGE WITH 2319 FILLER WIRE				15.8	0.7	9	i	ŀ	i
	T81 WELD + AGE WITH 2319 FILLER WIRE	:			19.4	2.7	6	:	i	1

					ALU	ALUMINUM	[2021	1 K _{Ie}							
	PRO]	PRODUCT			·	SC SC	SPECIMEN	z	CRACK			K			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIRLD STR (Kel)	WIDTH (in.)	THICK (in.)	DESIGN	LENGTH (in.) A	2.6 * (K _{ke/} TYS)* (in.)	K. (Keivin.)	K. MEAN	STAN	DATE	REFER
		1.00			61.2	1.990	966.0	C.	0.937	0.47	26.60			1972	84363
T81	Plate	1.00	R.T.	1.7	61.2	2.000	0.995	CT	0.933	0.50	27.50	27.0	0.6	1972	84363
		1.00			61.2	2.000	0.993	CT	0.961	0.48	26.80			1972	84363
		1.00			;	2.000	1.000	ŭ	1.000	0.15	15.90			1970	80073
		1.00			ı	2.000	1.000	CT	1.010	0.14	15.20			1970	80073
T81 REPAIR WELD + AGE WITH 2319		1.00	Ę		i	2.000	1.000	СТ	0.990	0.14	15.20			1970	80073
FILLER WIRE	Figue	1.00	H. H.		:	2.000	1.000	CT	1.030	0.16	16.00	15.8	0.7	1970	80073
		1.00			;	2.000	1.000	CT	1.040	0.14	15.20			1970	80073
		1.00			1	2.000	1.000	CT	1.020	0.18	17.00			1970	80073
		1.00				2.000	1.000	CT	1.040	0.19	17.60			1970	80073
		1.00			!	2.000	1.000	CT	1.030	0.20	18.40			0261	80073
		1.00			:	2.000	1.000	L	0.990	0.16	16.40			1970	80073
		1.00			:	2.000	1.000	CT	1.020	0.32	22.90			1970	80073
T81 WELD + AGE WITH 2319 FILLER WIRE	Plate	1.00	R.T.	7:	1	2.000	1.000	CT	1.080	0.22	18.90	19.4	2.7	1970	80073
		1.00			i	2.000	1.000	CT	1.050	0.33	23.20			1970	82008
		1.00			;	2.000	1.000	CT	1.040	0.18	17.20			1970	82008
		1.00			:	2.000	1.000	CT	1.010	0.31	22.60			1970	80073
		1.00			:	2.000	1.000	CT	1.040	0.19	17.50			1970	80073
1100	Ē	1.00	3		64.8	1.500	0.749	CT	0.706	0.32	23.10			1973	86213
10101	Likie	1.00	ő	<u>.</u>	64.8	1.500	0.749	cr	0.714	0.29	22.00	22.6	0.8	1973	86213
T8151	Plate	1.00	84	T-L	63.4	1.500	0.751	CT	0.726	0.23	19.10	. 1	i	1973	86213

TABLE 7.4.3.3

K_{Isco} SUMMARY FOR ALUMINUM ALLOY 2021

	-	Test		Yield			Specimen		Prod		:		Test		
Condition/Ht	Form	_	Spec Or.	Str (Ksi)	Envir.	Thick (in)	Design	Width (in)		Crack (in)	Ko (Ksi√in)	K _{lace} (Ksi√in)	Time (min)	Test Date	Refer
					Industrial Atm	1	LO	2	2.5	1	19.6	61	ı	1973	88998
T81	Д	R.T.	S-L	59.1	Salt- Dichromate- Acetate	1	$_{ m CT}$	2	2.5	ŀ	19.6	19	ı	1973	86688
					Seacoast	H	TO.	- 2	2.5		19.6	19	:	1973	86688
T81 Overheated Weld	P	R.T.	S-L	18.3	3.5% NaCl	1	MOL	2.5	1	i	14	11.3	ı	1970	80073
T81 Repaired Weld Aged 16hr 325F Heat Affected Zone	P	R.T.	T-S	28	3.5% NaCl	=	MOL.	2.5	1	i	14	11.9	i	1970	80073
T81 Repaired Weld Aged 16hr 325F Weld Center Line	Ъ	R.T.	S-L	24.7	3.5% NaCl	1	MOL	2.5	1	l	14	>10.3	l	1970	80073
T81 Repaired Weld Aged 16hr 325F Weld Fusion Line	P	R.T.	T-S	24.7	3.5% NaCl	H	TOM	2.5	1	ţ	14	7.7	į	1970	80073
T81 Welded Aged 16hr 325F Fusion Line	P	R.T.	T-S	23.4	3.5% NaCl	1	MOL	2.5	1	i	17	8.5	ŀ	1970	80073
T81 Welded Aged 16hr 325F Heat Affected Zone	Ъ	R.T.	S-L	25	3.5% NaCl	1	TOM	2.5	1	į	14	13.3	j	1970	80073
T81 Welded Aged 16hr 325F Weld Center Line	Ъ	R.T.	S-L	23.4	3.5% NaCl	1	MOL	2.5	1	-	17	7.2	l	1970	80073

TABLE 7.5.1.1

1 of 1

MEAN PLANE STRAIN FRACTURE TOUGHNESS FOR ALUMINUM 2000/6000 SERIES ALLOY 2024 AT ROOM TEMPERATURE

					K_{Ic}	$K_{Ic}~(ksi\sqrt{in})$	<u>1</u>			
Product Form	Condition/Heat Treatment				Specimen Orientation	n Orier	ntation			
			L-T			$\mathbf{T} \cdot \mathbf{L}$			\mathbf{S} - $\mathbf{\Gamma}$	
		Mean K _{ie}	Std Dev	ď	Mean K _{te}	Std Dev	Ħ	Mean K _{ie}	Std Dev	£
7-70	T351	33.4	3.9	9		::	:	:	ï	ı
riate	T851	23.3	2.4	99	20.7	1.9	63	:	1	:
Forging	T852	29.2	5.2	42	18.9	2.6	16	15.9	8.0	8
	T351	:		•••	25.	6.0	5	***	:	:
i I	T3511	38.	2.6	4	-	•••	•••	1	፥	:
Extrusion	T8510	30.4	2.7	3	16.5	1.	3	15.7	1.4	က
	T8511	24.1	0.4	2	16	0	2	i	:	:

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2024 AT ROOM TEMPERATURE

100.0 **6**0.0 FCGR (10° infeycle) ΔK Level (Ksi√in) 20.0 ENVIRONMENT: H.H.A. 10.0 6.28 6.0 0.359.0 **S** FREQ (Hz) 20 8 20 × 0.1 0.1 0.1 PRODUCT FORM PLATE ORIENTATION: L-S HEAT TREATMENT CONDITION! T851

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2024 AT ROOM TEMPERATURE

	100.0		
	1) 50.0		
NaCl	FCGR (10 * infeycle) AK Level (Ksiyin) 100 200	67.6	73.3
r: 3.5%	IGR (10 K Level	9.77	3.23
ENVIRONMENT: 3.5% NaCI	FC A		
VIRO	2.5		
日日	FREQ (Hz)	1	10
	R	0.02	0.02
: L-T	PRODUCT FORM	7.6	FLATE
ORIENTATION:	CONDITION/ HEAT TREATMENT	- 4000	1801

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 60.0 FCGR (10 ° m/cycle) **ENVIRONMENT: Distilled Water** ΔK Level (Ksiy/in) 20.0 46.79 69.97 74.93 10.0 6.16 6.35 6.67 5.35 0.99 9 0.07 KÇ N FREQ (Hz) 0.05 0.05 0.05 0.05 ĸ 9.0 9.0 PRODUCT FORM SHEET PLATE ORIENTATION: L-T HEAT TREATMENT CONDITION/ T351 13

100.0

7.03

0.08

PLATE

T851

1.15

1 of 2

TABLE 7.5.1.2.4

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2014 AT ROOM TEMPERATURE

ORIENTATION: L-T

ENVIRONMENT: Dry Air

ORIENTATION: L-I	L-1		3	ENVIRONMENT: DRY AIR	LAINEEL	II: DES	Alf		
/NOILITION/	PRODICE		FRED		FC	<i>GR</i> (10	FCGR (10 ⁶ inleyele)	2)	
HEAT TREATMENT	FORM	出	(Hz)		Δ	K Level	ΔK Level (Ksiųlin)		
				2.5	0,3	10.0	20.0	50.0	100.0
		0.2	20			3.87	25.62		
		0.2	20			3.61	22.15		
		0.2	20			3.63	26.99		
		0.2	20			3.61	25.31		
Т3	UNSPECIFIED	0.2	20			3.69	27.38		
		0.2	20			3.72	26.67		
		0.2	20			3.98	24.48		
		0.2	20			4.08	24.89		
		0.2	20			3.66	23.05		
		-0.25	в			4.01	43.64		
		0.08	-			5.91	74.38		
		0.08	θ			5.45			
181	SHEET	0.1	9			5.81	54.96		
		0.3	θ			9.26	59.55		
		0.3	θ			8.65	206.08		

TABLE 7.5.1.2.4 (CONCLUDED)

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2014 AT ROOM TEMPERATURE

			100.0										
	(e)	(0'09										
Air	f infeyel	(Ksi√in	20.0		258.73	679.33						43.14	21.21
VT: Dry	FCGR (10.º in/cycle)	ΔK Level (Ksi \sqrt{i} ii)	10.0	14.82	13.78	19.32	6.36	9.2	12.91	6.8	9.91	3.73	3.34
NMEN	FC	δ.	0'9	1.36	1.43	1.2					1.1		
ENVIRONMENT: Dry Air			2.5										
E	FREG	(Hz)		в	9	6	1	θ	1	0.1	-	8	9
	1	Ħ		0.5	0.5	0.5	0.08	0.08	0.3	0.08	0.08	0.08	0.08
: L-T	PRODUCT	FORM			SHEET (Cont'd)			PLATE			DMDGCA	FORGING	
ORIENTATION:	GONDI/HON/	HEAT TREATMENT			T81 (Cont'd)			T851			11050	7001	

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2024 AT ROOM TEMPERATURE

ORIENTATION: L-T

ENVIRONMENT: H.H.A.

CONDITION	PRODUCT		CHRA		FC	GR (10	FCGR (10 * intercle)	(3	
HEAT TREATMENT	FORM	R	(Hz)		V	K Level	AK Level (Kstylin)	(
				2.5	6.0	10.0	0.02	60.0	100.0
ТЗ	SHEET	0.05	2				35.29		
	Butter	0.	6			4.18			
T361	oneer	0.7	6		0.64	8.42			
	PLATE	0.33	25		0.7	11.63	94.93		
		0.05	6		0.07	6:33			
T3511	EXTRUSTION	0.6	6	90:0					
		0.5	6		0.47	10.68	65.82		
GR.F.	MANIHO	0.1	1		0.31	4.6			
401	raguo.	0.3	1		0.46	10.06	96.42		
		-0.25	-		6.0	7	49.16		
		0.1	0.1			43.86			
T81	SHEET	0.1	1			7.82	68.06		
		0.3	1		1.04	14.51			
		0.5	1		1.48	17.19			
T851	PLATE	0.33	25		0.92	12.36			

TABLE 7.5.1.2.6

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2024 ALLOYS AT ROOM TEMPERATURE

100.0 60.0 FCGR (10° in/cycle) ΔK Level (Ksiγin) ENVIRONMENT: JP-4 Jet Fuel 108.16 9.83 83. 42.48 66.34 75.1 10.0 8.11 7.62 7.85 8.43 9.0 KÇ PH FREQ (Hz) 10 0.08 0.08 0.02 90.0 ĸ PRODUCT FORM SHEET PLATE ORIENTATION:L-T HEAT TREATMENT CONDITION **T851 T81**

TABLE 7.5.1.2.7

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2024 AT ROOM TEMPERATURE

1000 50.0 FCGR (10 ° m/cycle) ΔK Level (Kstylii) 20.0 196.72 108.59 134.24 28.56 31.19 29.64 84.19 72.53 68.27 37.22 22 ENVIRONMENT: Lab Air 10.0 29.04 18.49 10.37 12.2 10.21 8.19 9.28 9.34 5.11 4.34 9.8 4.1 0.45 1.89 1.12 0.17 0.47 0.650.44 0.230.27 0.24 6.0 0.00 0.16 0.15 0.00 29 29 0.04 FREQ (Hz) 10-15 8-15 13.3 3.3310 20 20 20 10 10 2 49 0.02 0.05 0.02 0.02 0.33 -0.5 0.8 0.8 0.2 0.4 0.4 0.4 4 ∹ oʻ PRODUCT FORM SHEET PLATE ORIENTATION: L-T HEAT TREATMENT CONDITION \mathbf{T}_{3}

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK

ORIENTATION: L-T

ENVIRONMENT: Lab Air

PROD
FORM
SHEET
PLATE

TABLE 7.5.1.2.7 (CONTINUED)

HATICITE CRACK CROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AN

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2024 AT ROOM TEMPERATURE OPTENTATION: 1. T	'TH RATE AT DEFINED LEVELS OF ST 2024 AT ROOM TEMPERATURE . I. T	INED L	EVELS O APERAT	F STR URE	ESS IP	OF STRESS INTENSITY TURE	ľľÝ FA Air	CTOR /	¥
TOTAL PARTY	177			NATA N	FC	FCGR (10° injeyele)	*injeyelk	6	
ITION/	PRODUCT		FREG						
HEAT TREATMENT	FORM	В	(Hz)		V	ΔK Level (Kstylin)	(Ksiv(in)		
				2.5	6.0	10.0	20.0	50.0	100.0
		0.1	3				54.97		
		0.1	20			8.51			
		0.3	20			10.52			
		0.33	22		ı	8.21			
		0.4	3				241.62		
		0.4	9		0.69	11.71			
		0.4	10		0.62				
T351 (Cont'd)	PLATE (Cont'd)	0.4	10		0.55	9	83.87		
		0.4	12	0.04	0.57	10.72			
		0.5	20			13.16			
		9.0	10		0.81	12.69			
		0.6	20			14.67			
		0.8	1-5		1.65	32.4			
		0.8	6-10			27.69			
		9.0	6-10		1.42				

TABLE 7.5.1.2.7 (CONCLUDED)

4 of 4

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK

ORIENTATION: L-T

ENVIRONMENT: Lab Air

NOTHINGS	PRODITCT		FREG		FC	<i>JGR</i> (10	FCGR (10 * injeyele)	(9)	
HEAT TREATMENT	FORM	R	(Hz)		V	K Level	ΔK Level (Ksiγlīn)		
				2.5	0'9	10.0	20.0	80.0	100.0
		0.8	15	0.12	1.19				
T351 (Cont'd)	PLATE (Cont'd)	0.8	3-16			56.84			
		0.8	20	0.13	1.79				
		0.05	6		0.13				
		0.1	20		0.14	5.32	72.99		
		0.5	6	0.08					
13611	EXTRUSION	0.5	20	0.04	0.46	12.95			
		0.8	20		1.3				
		9.0	25	0.13					
		-1	10			6.41	43.76		
T42	PLATE	0.02	10			4.41	20.66	998.91	
		0.6	10		0.43	7.79	43.92		
• • • • • • • • • • • • • • • • • • • •		0.05	2				63.62		
181	SHEET	0.4	2				100.13		
T851	PLATE	0.02	10			3.59	43.67		

TABLE 7.5.1.2.8

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2024 AT ROOM TEMPERATURE

	100.0	
	56.0	
	(e) (n) (n)	
ហ់	'in/cycl (Kst/in)	
ENVIRONMENT: S.C.S.	FCGR (10° ⁶ in/cycle) ΔK Level (Ksi√in) 10.0 20.0	34
NI	OT TO	9.64
NME	F1	1.47
TRO		
EN	2.5	
	FREQ (Hz)	1
٠.	FI	
	H	0.08
	4.0	
	RODUCT	FORGING
Ę.	PRC	F(
Ä		
ORIENTATION: L-T	I.	
ENT)N/ MED	
ORIE	CONDITION/ AT TREATME	T852
	ONL	.
	CONDITION/ HEAT TREATMENT	
	-	

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK

ORIENTATION: L-T

ENVIRONMENT: S.T.W.

CONDITION	PRODUCT		FREG		FCC	<i>3R</i> (10	FCGR (10 ⁶ in/cycle)	(2	
HEAT TREATMENT	FORM	K	(HZ)		4.6	[Level	ΔK Level (Ksiγlin)		
				2.5	5.0	10.0	20.0	60.0	100.0
	Berning	. 0.	1			3.16			
	SHEET	0.33	10				115.83		
T351		0.05	1			5.95	84.96		
	PLATE	0.4	1			11.28			
		0.8	1		1				
		0.1	1		0.74	8.18			
T62	SHEET	0.5	ī		1.48				
		0.7	1		1.92				
		-0.2	1		0.77	12.72			
TO.	reano.	0.08	1			7.92	87.69		
101	197116	0.08	1			9.17	75.72		
		0.1	1		0.37	8.25			
T851	PLATE	0.08	1			7.87	101.73		

TABLE 7.5.1.2.10

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK

ORIENTATION: T-S

ENVIRONMENT: 3.5% NaCl

		770000000					
		100.0					
(a		60.0					
s infeyell	(Ksių/in)	20.0				229.11	
FCGR (10.6 in/cycle)	AK Level (Kstylin)	10.0		7.07	5.71	9.89	9.8
FC	4	5.6	1.19				1.03
		2.5					
FREQ.			20	20	20	20	20
	Ħ		0.1	0.1	0.1	0.5	0.5
PRODUCT		PLATE					
	CONDITION/ HEAT TREATMENT		T861				

TABLE 7.5.1.2.11

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2024 AT ROOM TEMPERATURE

6.03 FCGR (10° in/cycle) $\Delta K Level (Ksiy/in)$ 20.0 ENVIRONMENT: H.H.A. 10.0 11.71 8.43 5.29 5.14 1.26 6.0 0.59 0.57 69.0 0.95 6. S 0.07 FREQ (Hz) 20 ಜ 8 0.1 0.5 0.5 9.0 0.1 PRODUCT FORM PLATE ORIENTATION: T-S HEAT TREATMENT CONDITION T851

0.00 0.00

TABLE 7.5.1.2.12

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK

4					100			
ACIOR P		(6)		-	50.0			
11 I II K	NaCl	* infeyel		(Ksiyin	20.0	130.27		
	l: 3.5%	FCGR (10.º in/cycle)		AK Level (Ksiyin)	10.0	10.37	7.6	22.43
	MEN	FC		٧	5.0	1.43	96.0	2.28
JE SIR URE	ENVIRONMENT: 3.5% NaCl				2.5			0.21
MPERAT	EN		FREQ	(HZ)		20	20	20
OM TE			£	4		0.1	0.1	0.5
2024 AT ROOM TEMPERATURE	: T-L		PRODUCT	FORM			PLATE	
HOWN CHANGE CHANGE	ORIENTATION:		CONDITION/	HEAT TREATMENT			T851	
	ı							

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK . 2024 AT ROOM TEMPERATURE

ORIENTATION: T-L

ENVIRONMENT: Distilled Water

<u></u>						
		100.0				
9		50.0				
o infeyele	(Ksi\(m))	0.02	53.56	39.11		
FCGR (10.4 infeyele)	AK Level (Kstylin)	10.0	5.5	3.48		
FC	Δ	5.0			0.91	1.47
		2.5				0.28
	FREQ (Hz)		1	1-5	1	1-5
	Ħ		90.0	0.05	8.0	8.0
	PRODUCT FORM			E 22 22 22 22 22 22 22 22 22 22 22 22 22	Iggue	
	CONDITION/ HEAT TREATMENT			GF.	10	

1 of 1

TABLE 7.5.1.2.14

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK

	TATO TUNET THE THOOM THE FROM		TUMBER II					٠	
ORIENTATION:	.T.L		Ø	ENVIRONMENT: Dry Air	NMEN	T: Dry	Air		
AND DESCRIPTION OF THE PROPERTY OF THE PROPERT			C. C.		FC	GR (10°	FCGR (10.6 in/cycle)	6	
CONDITION/ HEAT TREATMENT	FORM	H	FKEQ (Hz)		Δ	K Level	ΔK Level (Ksiγlin)		
				2.5	6.0	10.0	0.02	50.0	100.0
		0.1	9		0.8	11.85			
T62	SHEET	0.3	9		0.68	11.37			
		0.5	9	0.05	0.94	14.87			
		-0.25	8			89'8	48.23		
T81	SHEET	0.08	9			4.3	74.64		
		0.1	8			3.53			
* 2005	200 - 24	0.08	1			6.9			
1861	PLATE	0.08	9			9.54			

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK

ORIENTATION: T-L

ENVIRONMENT: H.H.A.

- 11 - 0									
han O management of the	morracoun		Outur		FC	FCGR (10.º in/cycle)	⁶ in/cycl	(3	
HEAT TREATMENT	FORM	Я	(HZ)		Q	ΔK Level (Kstγin)	(Kst/in		
				2.5	5.0	10.0	0.02	60.0	100.0
Virte	Herman	6.0	1		0.79	11.71			
162	SHEET	0.5	1	0.13	1.28	14.95			
		-0.25	1			5.4	69.48		
T81	SHEET	0.1	1			6.41	131.38		
		0.5	1		1.58	21.7			
		0.1	20			8.28	79.17		
T851	PLATE	0.1	20		0.51	9.76			
		0.5	20	0.12	1.38	17.74			

TABLE 7.5.1.2.16

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2024 AT ROOM TEMPERATURE

100,0 50.0 FCGR (10.º in/cycle) $\Delta K Level (Ksi / in)$ 666.53 792.88 108.72 20.0 107.66 92.68790.1 42.37 ENVIRONMENT: Lab Air 10.0 12.68 28.91 5.53 7.97 7.84 9.924.55 0.68 0.78 1.65 6.0 0.34 0.260.951.24 10 81 0.08 0.17FREQ (Hz) 0.1-0.30.1-0.40.5-1510-15 3-10 3.10 2-105.17 4.9 2-3 2 30 30 30 40 0.02 0.330.08 0.08 0.050.6 0.8 0.1 0.1 0.1 0.1 24 0.4 0.4 0.1 0.1 PRODUCT FORM FORGING SHEET SHEET ORIENTATION: T-L HEAT TREATMENT CONDITION/ T852 T861 13

TABLE 7.5.1.2.16 (CONCLUDED)

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2024 AT ROOM TEMPERATURE

ORIENTATION: T-L	: T-L		되	NVIRO	NMEN	ENVIRONMENT: Lab Air	Air		
					FC	FCGR (10 ⁻⁶ in/cycle)	6 infeyel	(a	
CONDITION/ HEAT TREATMENT	PRODUCT FORM	R	FREQ (Hz)		7	ΔK Level (Ksi√in)	(Ksiv/in	(
				2.5	6.0	10.0	20.0	60.0	100.0
		0.1	13		1				
	SHEET (Cont'd)	0.1	10-15		1.07	9.82			
T861		0.4	10-15		1.26	31.84			
(Cont'd)		0.1	1				153.61		
	PLATE	0.1	1.5-5				173.27		
		0.1	10			6.94			

1 of 1

TABLE 7.5.1.2.17

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2024 AT ROOM TEMPERATURE

ORIENTATION: T-L

ENVIRONMENT: S.T.W.

					FC	'GR (10	FCGR (10.6 in/cycle)	(2	
CONDITION/ HEAT TREATMENT	FORM	Ħ	(ZH)		4	K Level	AK Level (Kstyln)		
				2.5	5,0	10.0	20.0	50.0	100.0
		-0.25	1		26.0	5.33			
CONT	Edition	0.1	1		0.82	5.86			
162	SHEET	0.3	1		1.3	16.22			
		0.5	1	0.11	2.5	25.44			
•		0.08	1			6.85	86		
181	SHEET	0.1	1		0.36	7.39	130.7		
T852	FORGING	0.08	1			5.19			

			,																						
		REPER	DA005	DA005	DA004	86213	DA005	DA005	82878	DA004	86213	11008	90011	90011	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213
		DATE	1987	1987	1861	1973	1987	1987	1972	1981	1973	1974	1974	1974	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973
		STAN		6.0				3.9					9.0			0.2		0.5	ï				6.0		
	K _{Ie}	K. MBAN		86 83				33.4					21.3			26.5		27.8		ï			25.0		
		K. (Kei • \in)	34.75	34.89	36.32	30.00	31.81	31.32	40.00	33.80	34.00	22.00	21.00	21.00	26.60	26.30	28.10	27.40	21.80	18.90	25.30	25.50	23.40	25.10	25.50
		(K, TYS)* (in.)	0.97	0.98	0.91	0.78	98.0	0.83	ï	0.88	1.51	0:30	0.27	0.27	0.74	0.72	0.63	09.0	0.59	0.50	0.92	0.93	0.73	0.83	0.86
	CRACK	LENGTH (in.) A	0.968	0.966	1.031	0.995	0.924	0.946	••	976.0	2.147		:	1	0.755	0.749	1.032	1.001	0.928	1.021	1.561	1.555	1.658	1.579	1.562
2024 K _{Ic}	EN	DESIGN	CT	СТ	CT	CT	CT	CT	NB	. cr	cT	Ç	cr	cr	CT	CT	CT	CT	cr	CI	CI	CT	CT	CT	CT
ALUMINUM	SPECIMEN	THICK (in.)	0.999	0.992	1.000	1.000	0.999	1.000	2.000	1.000	2.000	1.250	1.250	1.250	0.750	0.749	1.000	1.000	0.999	1.000	1.498	1.498	1.500	1.500	1.499
ALUM		WIDTH (in.)	2.008	2.005	2.006	2.000	2.009	2.006	4.000	2.007	4.010	2.500	2.500	2.500	1.500	1.500	2.000	2.000	2.000	2.040	2.990	2.990	2.990	3.000	3.000
		YIELD STR (Kst)	65.7	55.7	60.1	63.8	54.3	54.3	54.5	67.0	43.8	64.0	64.0	64.0	49.0	49.0	629	62.9	44.8	42.4	41.8	41.8	43.4	43.5	43.5
		SPEC	,	r _T				L.T			T:I		S-T		i	T-T	E	1.4	3·L	3·L			T-L		
		TEST TEMP (°F)		299				R.T.			R.T.		R.T.		,	84	20	G	82	06			R.T.		
	ıcr	THICK (in.)	1.00	1.00	1.00	2.50	1.00	1.00	3.00	1.00	2.00	3.00	3.00	3.00	1.00	1.00	2.50	2.50	2.50	2.50	3.00	3.00	9.00	3.00	3.00
	PRODUCT	FORM		Plate			1	Plate			Plate		Plate			Plate	â	Flate	Plate	Plate	•		Extrusion		
		CONDITION		T351				T351			T351		T351			T351		1351	T351	T351			T351		

		REFER	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	SW001	SW001	SW001	SW001	BW007	BW007	BW007	BW007
		DATE	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1990	1990	1990	1990	1978	1978	1978	1978
		STAN I			<u> </u>		<u> </u>	 =			<u> </u>		6:0				0.2			£.	L			5.6	
	K _{Io}			24.1				22.5			-		24.5				52.9			25.0				38.0	
			8			<u> </u>	8		05	20	28	40	1	8	8	8		16	94		99	06	39.30	38.40	34.20
		K. (Kai	23.80	24.40	24.00	22.40	21.00	23.20	23.50	25.50	25.20	24.40	25.10	23.00	24.00	23.00	22.70	25.15	24.94	25.24	24.65	39.90	39,	38.	34.
		2.0 (K.,TYS)* (in.)	96.0	0.88	0.85	0.72	0.63	0.73	0.75	0.94	0.92	0.75	0.80	0.63	69.0	0.75	0.73	:			:	1.06	1.03	0.98	0.78
	CRACK	LENGTH (in.) A	1.048	1.528	1.514	1.017	1.012	0.988	1.007	1.050	1.045	1.594	1.506	1.504	1.480	0.963	0.970	1.070	1.071	1.095	1.077		:	***	:
2024 K _{Ic}	EN	DESIGN	CT	CT	СТ	cr	cr	Į.	CI	ct	Ľ.	CI	IJ	CT	CT	CT	cr	CT	Ţ.	CT	CI	CCP Max Load	CCP Max Load	CCP Max Load	CCP Max Load
ALUMINUM	SPECIMEN	THICK (fn.)	1.000	1.498	1.499	0.999	1.000	1.000	1.000	0.999	1.000	1.500	1.500	1.500	1.500	1.002	1.001	0.989	0.989	0.989	0.989	1.200	1.200	1.200	1.200
ALUN		WIDTH (in.) W	2.000	3.000	3.000	2.000	2.000	2.000	2.000	2.000	2.000	3.000	3.000	3.000	3.000	1.990	1.990	1.998	1.996	1.999	1.999	ì	:		
		YIELD STR (Kat)	38.7	41.1	41.1	41.7	41.7	42.8	42.8	41.5	41.5	44.5	44.5	45.7	45.7	42.1	42.1	***		:		61.2	61.2	61.2	61.2
		SPEC		T.L				à				Ē	<u>.</u>			5	3		£	3			E	\$	
		TEST TEMP (°F)		83			8	70				G	3			S	0.5		•	>			Đ	; 4	
	JCT	THICK (in.)	3.50	5.00	6.00	3.00	3.00	3.00	3.00	3.50	3.50	5,00	6.00	3.00	3.00	3.00	3.00	1.00	1.00	1.00	1.00	:	1	:	١
	PRODUCT	FORM		Extrusion				iloign iver				Formed Box	Torker toat			Formed Bor	and the second		Retrueion				Retoriou		
		CONDITION		T351								1351				1351			T3511			•	13511		

						ALUN	ALUMINUM	2024 K _{Io}	n						
	PRODUCT	UCT					SPECIMEN	EN	CRACK			K _{Io}			
CONDITION	PORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	3.5 (K _a ,TYS) ³ (in.)	K. (Kai • √in.)	K. MBAN	STAN	DATE	REFER
1205	Ē	1.39	G	E	79.0	3.000	1.390	NB	1.490	0.20	22.10			1971	84288
1991	Fiate	1.39	-320	7.	79.0	3.000	1.390	NB	1.480	0.20	22.20	22.2	0.1	1971	84288
£	2	1.39	61	 E	69.2	3.000	1.390	NB	1.520	0.24	21.30			1971	84288
1001	Linte	1.39	7117	3	69.2	3.000	1.390	NB	1.570	0.27	22.70	22.0	1.0	1971	84288
		3.00		1	64.4	1.500	0.750	CT	0.750	0.55	30.30			1972	83243
T851	Plate	3.00	59	rs S	64.4	1.500	0.750	CT	0.750	0.59	31.40	30.3	1.1	1972	83243
		3.00			64.4	1.500	0.750	CT	0.750	0.52	29.30			1972	83243
		3.00			66.8	1.500	0.750	. CT	0.750	0.43	27.60			1972	83243
T851	Plate	3.00	-65	7	6.68	1.500	0.750	cr	0.750	0.33	24.40	26.2	1.6	1972	83243
		3.00			6.99	1.500	0.750	CT	0.750	0.39	26.50			1972	83243
T851	Plate	3.00	59	T.L	66.5	1.500	0.750	CT	0.750	0.31	23.30		:	1972	83243
r ner	5	3.00		, -	63.3	1.500	0.750	CT	0.750	0.63	31.70			1972	83243
1691	riare	3.00	•	3	63.3	1.500	0.750	CT	0.750	0.62	31.40	31.6	0.2	1972	83243
		3.00		h	65.5	1.500	0.750	cr	0.750	0.37	25.20			1972	83243
T851	Plate	3.00	•	7	65.5	1.500	0.750	CT	0.750	0.45	27.90	27.5	2.2	1972	83243
		3.00			65.5	1.500	0.750	CT	0.750	0.51	29.50			1972	83243
706	E	3.00		Ē	65.5	1.500	0.750	CT	0.750	0.30	22.90			1972	83243
1001	Liate	3.00	•	3	65.5	1.500	0.750	cr	0.750	0.25	20.80	21.9	1.5	1972	83243
		3.00		, .1.	61.0	1.500	0.750	cr	0.750	69.0	32.20			1972	83243
r age	900	3.00	£	9	61.0	1.500	0.750	CT	0.750	0.61	30.00			1972	83243
		3.00	<u> </u>	3	61.0	1.500	0.750	CT	0.750	0.67	31.70	27.5	5.5	1972	83243
		1.37			66.1	1.006	0.499	cr	0.493	0.28	22.90			1978	MPC01

	7				γ	,		,	,		1	· · · · ·		T	,		,							
		REFER	MPC01	86429	84360	84360	86213	90981	90981	83243	83243	84360	84360	84360	84360	84306	11006	84306	90011	84306	90011	90011	90011	84306
		DATE	1978	1973	1971	1971	1973	1974	1974	1972	1972	1971	1971	1971	1971	1972	1974	1972	1974	1972	1974	1974	1974	1972
		STAN		Cont'd											2.4									
	K	K. MBAN		Cont'd											23.3									
		K √ini,	21.90	26.20	18.60	18.70	23.90	24.60	24.40	26.90	27.30	25.70	26.50	22.10	22.30	21.90	24.00	21.30	29.00	20.70	21.00	00'72	25.00	23.80
		2.6 (K _{L,} TYS)* (in.)	0.27	0.38	0.25	0.25	0.40	0.39	0.38	0.45	0.47	0.41	0.40	0:30	0:30	0.28	0.34	0.27	0.50	0.25	0.26	0.28	0.37	0.34
	CRACK	LENGTH (In.) A	0.513	0.623	1.226	1.206	1.005	:	:	0.750	0.750	1.311	1.303	1.203	1.207	1.232		1.259	:	1.292		:	1	1.239
2024 K _{lc}	NE	DESIGN	CT	CT	cr	cr	cr	NB	NB NB	. cr	CT	<u>د</u>	cr	CT	cr	CT	CT	CT	CT	CT	CT	CT	CT.	CT
ALUMINUM	SPECIMEN	THICK (in.)	0.499	0.602	1.254	1.243	1.000	1.020	1.020	0.750	0.750	1.251	1.250	1.250	1.250	0.625	0.750	0.625	0.620	0.624	1.000	1.000	0.750	0.626
ALUM		WIDTH (in.)	1.006	1.200	2.500	2.500	1.990	2.000	2.000	1.500	1.500	2.500	2.500	2.500	2.500	2.500	2.000	2.490	2.000	2.480	3.000	3.000	2.000	2.500
		YIELD STR (Ket)	66.1	67.5	69.3	59.3	0.09	62.4	62.4	63.4	63.4	63.8	63.8	63.9	63.9	65.0	65.0	65.0	65.0	65.0	65.0	65.0	66.0	65.0
		SPEC	L's	Cont'd			•	•						E	<u> </u>									
		TEMP TEMP (°F)	R.T.	Cont'd										Ę							··			
	'CT	THICK (in.)	1.37	1.50	3.20	3.20	2.50	4.00	4.00	3.00	3.00	2.00	2.00	2.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	PRODUCT	РОКМ	Plate	Cont'd	1									5100	200	I.	.	1				1	1	
		CONDITION	T851	Cont'd										138F										

F	1					1														1					
		REFER	90011	84306	11006	11006	84306	84306	84306	84306	11006	MPC01	MPC01	86213	86213	MPC01	MPC01	MPC01	86213	86213	86213	MPC01	MPC01	MPC01	85836
		DATE	1974	1972	1974	1974	1972	1972	1972	1972	1974	1978	1978	1973	1973	1978	8/61	8261	1973	1973	1973	1978	1978	1978	1973
		STAN												Cont'd			,								
	K _{Io}	K. MEAN												Cont'd											
		K. (Ket *	21.00	27.30	25.00	29.00	22.90	27.80	23.40	20.40	32.00	23.70	22.50	23.20	25.20	22.20	23.20	21.80	23.20	23.70	22.80	22.50	25.00	25.40	24.30
		(K _w Tv8)* (in.)	0.26	0.44	0.37	0.50	0.31	0.46	0.32	0.25	0.60	0.32	0.28	0.31	0.37	0.27	0.30	0.27	0.31	0.33	0:30	0.28	0.34	0.36	0.35
	CRACK	LENGTH (in.) A		3.035		:	1.515	3.064	1.500	1.263	ŀ	1.093	1.074	1.500	1.480	1.490	1.059	1.480	1.546	1.631	1.048	0.975	1.490	1.510	1.526
2024 K _{Jo}	N	DESIGN	CT	cr	cr	CT	CT	C.	cr	.cr	CT	cr	CT	NB	NB	NB	CT	NB	NB	NB	CT	CT	NB	NB	CT
ALUMINUM	SPECIMEN	THICK (In.)	1.000	0.499	0.750	0.620	0.756	0.499	0.755	0.624	0.750	0.988	0.877	1.383	1.386	1.383	1.001	1.383	1.386	1.386	1.00.1	1.00.1	1.393	1.393	0.757
ALUM		WIDTH (in.) W	3.000	6.990	2.000	2.000	3.000	6.990	3.000	2.490	2.300	1.987	1.989	3.000	3.000	2.980	1.998	3.020	3.000	3.000	2.000	1.990	2.980	3.020	3.000
		YIELD STR (Kat)	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.3	65.3	65.6	65.6	65.6	65.6	65.6	65.6	65.6	9.29	65.6	65.8	65.8	66.0
		SPEC												Cont'd											
		TEST TEMP (°F)												R.T. Cont'd									•		
	ıcr	THICK (in.)	3.00	1.75	3.00	3.00	1.75	1.75	1.75	3.00	3.00	1.00	0.87	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	3.00
	PRODUCT	FORM												Plate Cont'd											
		CONDITION												T851 Cont'd											

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		REFER	84306	84306	MPC01	MPC01	86213	MPC01	86213	MPC01	MPC01	18606	18606	NC003	NC003	MPC01	MPC01	90981	86429	86429	MPC01	18606	90981	90981
		DATE	1972	1972	1978	1978	1973	1978	1973	1978	1978	1974	1974	1982	1982	1978	1978	1974	1973	1973	1978	1974	1974	1974
		STAN												Cont'd										
	K _{Ie}	K. MEAN												Cont'd		,								
		K. (Kei • √in.)	23.50	24.00	21.80	21.50	22.10	22.10	20.90	21.50	21.50	21.00	20.40	22.00	22.00	21.10	20.90	21.90	25.20	24.60	23.60	22.80	22.00	24.00
		(K _{L,} TYS) ² (in.)	0.32	0.33	0.25	0.25	0.28	0.27	0.25	0.25	0.25	0.25	0.24	0.27	0.27	0.24	0.24	0.26	0.35	0.33	0.28	0.26	0.25	0.29
	CRACK	LENGTH (in.) A	1.533	1.540	1.525	1.474	1.536	0.781	1.445	0.769	1.149	:	1		:	0.765	0.768	;	1.018	1.004	0.767		:	ï
2024 K _{Ie}	EN	DESIGN	cr	CT	NB	NB	NB	CI	NB	CT	cT	NB	NB	cr	CT	CT	CT	CT	cr	CT	r.	CT	CT	CT
ALUMINUM	SPECIMEN	THICK (fn.)	0.995	0.994	1.400	1.401	1.400	0.761	1.401	0.616	1.009	1.020	1.020	0.709	0.709	0.518	0.481	0.375	1.001	1.000	0.631	0.750	0.750	0.750
ALUM		WIDTH (in.)	3.000	3.000	2.990	3.008	3.000	1.502	3.000	1.508	2.016	2.000	2.000	1.500	1.500	1.500	1.506	1.000	2.000	1.980	1.504	1.500	1.500	1.500
		YIELD STR (Kel)	0.99	66.0	66.1	66.1	66.1	66.1	66.1	66.2	66.2	66.5	66.5	67.0	67.0	67.1	67.1	67.1	67.5	67.5	68.0	70.1	70.1	70.1
		SPEC											1.1	Cont'd										
		TEST TEMP (°F)											R.T.	Cont'd										
	ıcr	THICK (in.)	3.00	3.00	1.37	1.37	1.37	0.75	1.37	0.62	1.00	4.00	4.00	0.75	0.75	0.50	0.50	0.37	1.50	1.50	0.62	0.75	0.75	0.75
	PRODUCT	FORM											Plate	Cont'd										
		CONDITION											T851	Cont'd						· · · · · · · · · · · · · · · · · · ·				

	r i																7								\neg
		REFER	MPC01	90981	90981	83243	83243	83243	90011	84306	90011	90011	90011	84306	90011	90011	90011	84306	90011	82880	MPC01	MPC01	MPC01	84288	82880
		DATE	1978	1974	1974	1972	1972	1972	1974	1972	1974	1974	1974	1972	1974	1974	1974	1972	1974	1972	1978	1978	1978	1971	1972
		STAN													1.9										
	K _{Io}	K. MEAN	ı					,							20.7									-	
		K. (Kel • √in.)	22.50	19.80	19.90	22.60	22.20	19.70	24.00	17.90	18.00	23.00	23.00	18.80	25.00	23.00	23.00	18.50	22.00	20.90	22.50	22.10	18.90	20.10	22.40
		(K, TYS)* (in.)	0.28	0.26	0.26	0.32	0.31	0.24	0.35	0.20	0.20	0.32	0.32	0.22	0.38	0.32	0.32	0.21	0.30	0.26	0.28	0.28	0.21	0.24	0:30
	CRACK	LENGTH (in.) A	0.488	i	:	0.750	0.750	0.750	ı	1.233	:		:	1.240	•••			1.222	ï	0.986	1.540	1.501	1.510	1.512	0.777
2024 K _{Ic}	EN	DESIGN	cr	NB	NB	CI	CT	CT	CT	. cr	CT	CI	CT	NB	NB	NB	NB	NB	NB						
ALUMINUM	SPECIMEN	THICK (In.)	0.500	1.020	1.020	0.750	0.750	0.750	0.620	0.624	1.000	0.750	0.750	0.625	0.750	0.750	0.620	0.626	0.750	1.000	1.384	1.384	1.383	1.387	0.750
ALUM		WIDTH (in.) W	0.996	2.000	2.000	1.500	1.500	1.500	2.000	2.490	3.000	2.000	2.000	2.500	2.500	2.500	2.000	2.500	2.000	2.000	3.020	3.002	3.020	3.000	1.500
		YIELD STR (Kel)	65.4	61.5	61.5	63.5	63.5	63.5	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.4	64.4	64.4	64.4	64.4	64.4
		SPEC	T-S																						
		TEST TEMP (°F)	R.T.							-				į	H.										
	icr	THICK (in.)	1.37	4.00	4.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	. 3.00	1.38	1.37	1.37	1.37	1.39	1.38
	PRODUCT	PORM	Plate												Flate										
		CONDITION	1851											i	1881										

		REFER	82880	82880	MPC01	MPC01	82880	82880	82880	84288	82880	MPC01	84288	82880	82880	90981	90981	86213	86213	86213	MPC01	85836	MPC01	MPC01
		DATE	1972	1972	1978	1978	1972	1972	1972	1971	1972	1978	1971	1972	1972	1974	1974	1973	1973	1973	1978	1973	1978	1978
		STAN												Cont'd										
	K	K, MBAN												Cont'd										
		K. (Kel	20.20	20.00	19.10	18.20	21.30	19.30	19.60	20.20	09'02	19.10	20.50	20.60	20.00	18.20	17.80	19.80	19.20	18.30	21.80	23.00	18.30	22.00
		2.6 * (K _{L,} TYS)* (in.)	0.24	0.24	0.21	0.19	0.27	0.22	0.23	0.24	0.25	0.21	0.25	0.26	0.24	0.20	0.19	0.23	0.22	0.20	0.27	0.31	0.19	0.27
	CRACK	LENGTH (in.) A	:	:	1.520	1.450	0.512	0.503	0.995	1.507	•	1.510	1.508	0.512	0.977	:		1.038	1.055	1.009	1.501	1.293	1.489	1.512
2024 K _{Io}	EN	DESIGN	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	CI	CI	CT	NB NB	Ę	NB	NB
ALUMINUM	SPECIMEN	THICK (in.) B	1.390	1.390	1.383	1.383	0.500	0.500	1.000	1.388	1.380	1.383	1.385	0.500	1.000	1.020	1.020	1.000	1.000	1.000	1.392	1.246	1.392	1.392
ALUM		WIDTH (in.)	3.000	3.000	2.980	3.021	1.000	1.000	2.000	3.000	3.000	3.020	3.000	1.000	2.000	2.000	2.000	2.000	2.000	2.000	3.002	2.500	2.978	3.024
		YTELD STR (Kel)	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.4	64.6	64.6	64.8	64.8	64.8	65.0	65.0	65.0	65.0
		SPEC	R.T. Cont'd																					
		TEST TEMP (°F)											R.T.	Cont'd										
	ıcr	THICK (in.)	1.39	1.39	1.37	1.37	1.38	1.38	1.38	1.39	1.39	1.37	1.39	1.38	1.38	4.00	4.00	1.37	1.37	1.37	1.37	3.00	1.37	1.37
	PRODUCT	FORM											Plate	Cont'd	•									
		CONDITION											T851	Cont'd										

						ALUN	ALUMINUM	2024 K _{Io}							
	PRODUCT	ucr					SPECIMEN		11			K _{Io}			
CONDITION	FORM	THICK (in.)	TEMP (°F)	SPRC	YIELD STR (Kel)	WIDTH (fn.)	THICK (In.)	DESIGN	LENGTH (in.) A	%.6 (K.,TYS)* (in.)	K. (Kei • √in.)	K. MEAN	STAN	DATE	REFER
		3.00			65.0	2.500	1.246	CT	1.293	0.31	23.00			1973	85836
		1.37		1	65.0	3.000	1.392	NB	1.565	0.23	19.80			1973	86213
		0.75		1	65.2	1.494	0.761	CT	0.792	0.21	19.10			1978	MPC01
		1.37		L	65.5	2.000	0.999	CT	1.097	0.21	19.10			1973	86213
		1.37			65.5	3.018	1.400	NB	1.539	0.22	20.20			1978	MPC01
		1.37			66.5	3.000	1.400	NB	1.520	0.23	19.80			1973	86213
		1.37	_		65.5	2.000	0.999	cr	1.065	0.19	18.20			1973	86213
		1.37		1	65.6	2.978	1.385	. NB	1.489	0.36	25.40			1978	MPC01
		1.00		.	65.7	2.016	0.987	cr	1.109	0.24	21.00			1978	MPC01
T851 Cont'd	Plate Cont'd	0.62	R.T. Cont'd	Cont'd	65.7	1.498	0.616	CT	0.779	0.19	18.90	Cont'd	Cont'd	1978	MPC01
		0.50			629	1.490	0.481	CT	0.760	0.21	19.30			1978	MPC01
		0.37			9.99	1.000	0.375	CT	•	0.29	22.70			1974	18606
		0.37		1	66.6	1.000	0.375	CT	:	0.28	22.10			1974	90981
		0.37			9.99	1.000	0.375	CT		0.32	23.80			1974	18606
		0.50		1	67.2	1.508	0.518	CT	0.784	0.21	19.50			1978	MPC01
		0.62			67.3	1.498	0.631	CT	0.794	0.22	20.20			1978	MPC01
		0.75			68.6	1.500	0.750	CT	:	0.25	21.80			1974	18606
		0.75		4	68.6	1.500	0.750	CT	:	0.25	21.90			1974	18606
		0.75			68.6	1.500	0.750	CT	:	0.26	22.00			1974	18606
1851	Plate	3.00	R.T.	r.s	64.0	2.500	0.750	CT	i	0.35	24.00	ı	ı	1974	11006
Ę	Ē	1.37	ş	L	65.6	2.000	1.001	CT	0.982	0.30	22.80			1973	86213
1991	Flate	1.37	70	5	65.6	2.000	1.002	CT	1.036	0.32	23.40	23.8	0.5	1973	86213

10 of 15

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		REFER	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	84306	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213
		DATE	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1972	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973
		STAN			Cont'd					0.2					1.2			0.3			0.8		
	K,	K. MEAN			Cont'd				•	20.2					21.6			18.7			21.0		1
		Ka Ka	22.40	23.40	22.50	23.40	20.00	19.90	20.00	20.40	20.10	20.50	23.30	20.80	20.60	21.30	18.80	18.30	18.90	21.30	20.10	21.60	22.50
		(K.,/TYS)* (in.)	0.29	0.32	0.29	0.32	0.24	0.24	0.24	0.25	0.24	0.25	0.32	0.23	0.22	0.24	0.19	0.18	0.20	0.26	0.23	0.27	0:30
	CRACK	LENGTH (in.) A	0.981	1.030	0.975	1.033	1.021	1.010	0.992	1.058	1.049	1.032	1.650	0.739	0.726	0.742	0.754	0.749	0.740	0.504	0.491	0.484	0.510
2024 K _{Ic}	Z	DESIGN	CT	Ç	CI.	CT	CT	CT	СŢ	.cr	cr	CT	CT	CT	cr	СŢ	CT	cr	CT	CT	CT	CT	CT
ALUMINUM	SPECIMEN	THICK (in.) B	1.00.1	1.002	1.001	1.002	0.999	1.000	1.000	1.001	1.000	1.002	1.007	0.750	0.750	0.750	0.749	0.750	0.750	0.500	0.500	0.500	0.500
ALUM		WIDTH (in.)	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.990	1.500	1.500	1.500	1.490	1.500	1.500	1.000	1.000	1.000	1.000
		YIELD STR (Ket)	65.6	65.6	65.6	65.6	64.4	64.4	64.4	64.8	64.8	64.8	65.0	689	68.9	68.9	67.6	67.6	67.6	65.8	65.8	65.8	65.4
		SPEC		7.	Cont'd			<u>.</u>	Ē	=				E	3			T·L			L's		T-S
		TERF TEMP (°F)		82	Cont'd				S	7				3	5			84			98		98
	ıcr	THICK (in.)	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.75	1.00	1.00	1.00	1.00	1.00	1.00	1.37	1.37	1.37	1.37
	PRODUCT	FORM		Plate	Cont'd				2,00					5	Linie			Plate			Plate		Plate
		CONDITION		T851	Cont'd				1385					i			-	1851			T861		T851

				ALUN	ALUMINUM	2024 K _{Io}							
					SPECIMEN	EN	CRACK	÷		K			
THICK TEMP SPEC STR (in.) (°F) (Kai)	SPEC	¥ 25 5	STR (Kei)	WIDTH (in.) W	THICK (in.)	DESIGN	LENGTH (fn.) A	(K _{L,} TYS)* (in.)	K. (Kai • √in.)	K. MEAN	STAN	DATE	REFER
1.37 64.2	64.	64.5		1.000	0.500	CT	0.511	0.18	17.00			1973	86213
1.37 86 S-T 64.2		64.2		1.000	0.500	CT	0.499	0.15	15.70	16.2	0.7	1973	86213
1.37 64.2	64.2	64.2		1.000	0.500	CT	0.510	0.16	16.00			1973	86213
1.37 66.1		66.1		1.000	0.500	CT	0.513	0.29	22.40			1973	86213
1		66.1		1.000	0.499	CT	0.493	0.31	23.40	22.9	0.7	1973	86213
1.37 65.5	65.5	65.5		1.000	0.500	CT	0.511	0.25	20.80			1973	86213
1.37 88 T-S 65.5		65.5		1.000	0.500	cr	0.515	0.24	20.40	20.6	0.2	1973	86213
1.37 65.6	65.6	65.5		1.000	0.500	. CT	0.496	0.25	20.60			1973	86213
1.37 64.1	64.1	64.1		1.000	0.500	CT	0.479	0.15	15.80			1973	86213
1.37 88 S-T 64.1	l	64.1		1.000	0.500	CT	0.502	0.15	15.90	15.8	0.1	1973	86213
1.37 64.1	64.1	64.1		1.000	0.500	CT	0.480	0.15	15.80			1973	86213
1.37 64.1	64.1	64.1	\neg	1.000	0.501	CT	0.506	0.18	17.20			1973	86213
1.37 88 S.L 64.1		64.1	\neg	1.000	0.501	CT	0.478	0.15	15.60	16.4	9.0	1973	86213
1.37 64.1	64.1	64.1		1.000	0.500	CT	0.496	0.16	16.30			1973	86213
-		56.4	\neg	1.500	0.750	CT	0.750	0.75	30.90			1972	83243
3.00 2.00 1.53 56.4	,	56.4		1.500	0.750	CT	0.750	0.70	29.70	30.3	9.0	1972	83243
3.00 68.6	9.89	68.6		1.500	0.750	CT	0.750	0.49	25.90			1972	83243
3.00 200 L.T 58.6		58.6		1.500	0.750	CT	0.750	0.56	27.80	26.8	1.0	1972	83243
3.00 58.6	58.6	68.6		1.500	0.750	CT	0.750	0.52	26.80			1972	83243
3.00 58.3	68	.68	8	1.500	0.750	CT	0.750	0.32	20.70			1972	83243
3.00 200 T·L 68.3		68.	_	1.500	0.750	CT	0.750	0.38	22.80	21.8	1.1	1972	83243
3.00 58.3	68.3	58.3		1.500	0.750	CT	0.750	0.35	21.80		1	1972	83243

12 of 16

					ALUN	ALUMINUM	2024 K _{Io}	.0						
PRODUCT						SPECIMEN	IEN	CRACK			K			
THICK (In.)	T	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 (K _w ,TYB)* (In.)	K. (Ked • √in.)	K. MBAN	STAN	DATE	REFER
3.00				64.9	1.500	0.750	CT	0.750	09:0	26.80			1972	83243
3.00		300	7	64.9	1.500	0.750	CT	0.750	0.62	27.30	26.9	0.4	1972	83243
3.00				64.9	1.500	0.750	CT	0.750	0.59	26.60		;	1972	83243
3.00	٥	906	I	64.1	1.500	0.750	CI	0.750	0.40	21.70			1972	83243
3.6	3.00	3	7.	64.1	1.500	0.750	CT	0.750	0.42	22.30	22.0	9.0	1972	83243
4,	4.50		1.	58.5	4.023	2.000	CT	2.132	0.78	33.10			1978	MPC01
Extrusion 4.	4.00	R.T.	5	61.8	3.981	1.858	CT	2.110	0.57	30.20	30.4	2.7	1978	MPC01
6,	2.76			63.2	4.018	2.000	. CT	2.009	0.46	27.80			1978	MPC01
4	4.50		1	58.9	5.042	2.500	CT	2.622	0.21	17.50			1978	MPC01
Extrusion 4.	4.00	R.T.	7.1	60.5	5.064	2.499	CT	2.527	0.16	16.30	16.5	1.0	1978	MPC01
2.	2.76			61.8	4.018	1.999	CT	2.049	0.15	15.60			8261	MPC01
4,	4.50			56.6	3.022	1.500	CT	1.641	0.21	16.50			1978	MPC01
Extrusion 4	4.00	R.T.	1.6	58.2	2.998	1.498	CT	1.529	0.19	16.50	15.7	4.	1978	MPC01
	2.76			59.6	2.018	0.999	CT	0.989	0.13	14.10		:	1978	MPC01
i i i i i i i i i i i i i i i i i i i	3.50	5	E	66.5	1.996	1.000	CT	0.978	0.32	24.40			1978	MPC01
-	3.50	1	1.4	66.5	2.004	1.000	CT	0.982	0:30	23.80	24.1	9.0	1978	MPC01
	3.50	Ē	I	61.8	2.015	1.000	cr	1.048	0.15	16.00			1978	MPC01
_	3.60		3	61.8	1.980	1.000	CT	1.010	0.15	16.00	16.0	0.0	1978	MPC01
	3.50	E	E 0	61.6	2.014	1.001	CT	1.007	0.18	17.10			1978	MPC01
-	3.50		5	61.6	2.014	1.001	CT	1.007	0.16	16.30	16.7	9.0	1978	MPC01

SPECIMEN SGTR (Ref) WIDTH (In.) THICK II.) 65.1 3.000 1.502 65.1 3.000 1.502 65.1 3.000 1.502 66.1 4.000 2.001 66.1 4.000 2.001 66.1 4.000 1.250 66.1 4.000 1.254 68.0 2.500 1.252 68.0 2.500 1.247 68.0 2.500 1.247 64.6 1.500 0.762 64.6 1.500 0.762 64.6 1.500 0.761 65.0 2.500 1.250 65.0 2.500 1.250 64.6 1.500 0.762 65.0 2.500 1.250 65.0 2.500 1.250	TEST SPEC STR. (FF) OR (Gel) (GE) (GE) (GE) (GE) (GE) (GE) (GE) (GE
(In.) W (In.)	
3.000 3.000 4.000 4.000 4.000 2.490 2.500 2.500 2.500 1.500 1.500 2.500 2.500 2.500 2.500	55.1 56.1 56.1 56.1 56.0 58.0 58.0 58.0 60.0 60.0 64.6
3.000 3.000 4.000 4.000 2.600 2.600 2.600 2.600 1.600 1.600 2.600 2.600 2.600 2.600 2.600 2.600	65.1 66.1 66.1 66.1 68.0 68.0 68.0 68.0 68.0 68.0 68.0
3.000 4.000 4.000 4.000 2.490 2.500 2.500 2.500 1.500 1.500 2.500 2.500 2.500	55.1 56.1 56.1 58.0 58.0 58.0 58.0 60.0 60.0 64.6
2.500 2.500 2.500 2.500 2.500 2.500 2.500 2.500 2.500 2.500 2.500 2.500	56.1 56.1 56.0 58.0 58.0 58.0 66.0 64.6 64.6
4.000 4.000 2.490 2.500 2.500 2.500 1.500 1.500 2.500 2.500	56.1 58.0 58.0 58.0 58.0 58.0 60.0 64.6 64.6
2.500 2.500 2.500 2.500 1.500 1.500 2.500 2.500 2.500	58.0 58.0 58.0 58.0 58.0 60.0 64.6 64.6
2.490 2.500 2.500 2.500 2.500 1.500 1.500 2.500 2.500	58.0 58.0 58.0 58.0 60.0 64.6 64.6
2.500 2.500 2.500 2.500 1.500 2.500 2.500 2.500	58.0 58.0 58.0 60.0 64.6 64.6
2.500 2.500 2.500 1.500 1.500 2.500 2.500	58.0 58.0 60.0 64.6 64.6
2.490 2.500 1.500 1.500 2.500 2.500	58.0 60.0 64.6 64.6
2.500 2.500 1.500 1.500 2.500 2.500	60.0 64.6 64.6 64.6
2.500 1.500 1.500 2.500 2.500	64.6
1.500 1.500 2.500 2.500 2.500	64.6 64.6
1.500 1.500 2.500 2.500	64.6 64.6
2.500	64.6
2.500	
2.500	65.0
2.500	65.0
	65.0
65.4 3.000 1.500	65.4
65.4 3.000 1.500	65.4
65.4 3.000 1.502	65.4
66.7 1.990 1.000	66.7
66.7 2.000 1.000	66.7
66.7 2.000 0.999	66.7

	.,													=											,	
		REFER	17720	11720	17720	77720	86213	77720	86213	90011	90011	90011	11720	77720	77720	17720	17720	17720	82675	82675	17720	77720	17720	17720	77720	11720
		DATE	1970	1970	1970	1970	1973	1970	1973	1974	1974	1974	1970	1970	1970	1970	1970	1970	1972	1972	1970	1970	1970	1970	1970	1970
		STAN									2.6									0.1				9.0		
	K _{Io}	K. MEAN									18.9									17.6				15.9		
		K. (Red.	17.30	17.80	17.60	15.10	18.20	18.10	15.20	20.00	21.00	21.00	24.10	23.50	19.80	19.40	16.90	16.70	17.70	17.50	16.40	14.80	17.30	16.00	15.80	15.00
		(K, TYS)* (in.)	0.23	0.25	0.24	0.17	0.25	0.25	0.17	0:30	0.33	0.33	98.0	0.34	0.24	0.20	0.15	0.15	0.27	0.26	0.23	0.19	0.26	0.22	0.21	0.15
	CRACK	LENGTH (in.)	1.422	1.507	1.663	2.005	2.035	2.035	2.005	:	:		0.667	0.697	0.763	0.905	1.020	1.010	0.700	0.700	0.512	0.505	0.507	0.490	0.473	0.267
2024 K _{Io}	N.	DESIGN	NB	NB	NB	NB	NB NB	NB	NB	CT	, CI	CI	NB	NB	NB	MB	NB	NB	NB	NB	NB	NB	NB NB	NB	NB NB	NB NB
ALUMINUM	SPECIMEN	THICK (in.)	1.500	1.502	1.501	2.005	2.003	2.003	2.005	1.000	1.000	1.000	0.752	0.754	0.749	1.000	1.001	0.999	0.700	0.700	0.500	0.500	0.500	0.500	0.500	0.250
ALUM		WIDTH (in.) W	3.000	3.000	3.000	4.000	3.990	3.990	4.000	2.000	2.000	2.000	1.500	1.500	1.500	2.000	2.000	1.990	1.400	1.400	1.000	1.000	1.000	1.000	1.000	0.500
		YIELD STR (Kel)	56.7	56.7	56.7	67.8	67.8	67.8	67.8	58.0	68.0	68.0	63.8	63.8	63.8	0.69	0.69	69.0	53.9	63.9	63.9	63.9	63.9	54.5	54.5	9.09
		SPEC	1	1	1					t	3			.					E	5	-		5	3		
		TEST TEMP (°F)								£	į								£	11.11			Ē			
	Cr	THICK (in.)	6.00	5.00	2.00	6.00	6.00	6.00	6.00	3.00	3.00	3.00	2.00	2.00	2.00	3.00	3.00	3.00	6.00	6.00	6.00	6.00	6.00	5.00	6.00	4.00
	PRODUCT	FORM	-			_	4	! -	.	Dorming	20 T								Porting	t of girls	•		Dogmins	6670.4		
		CONDITION								1859									285				7,000			

TABLE 7.5.2.1 (CONCLUDED)

ALUMINUM 2
THICK TEMP OR (Kai)
Cont'd Cont'd 60.6
49.5
\dashv
82 T·L 69.0
83 L-T 58.6
63.2
\dashv
50.1
83 S-T 50.5
67.2
84 LS 64.4
64.4
84 T-S 65.2
84 T-L 62.9
84 S-T 67.6
84 S-L 60.9
200 17.1 65.0
265 T.L

TABLE 7.5.2.2

PRODUCT PRODUCT POHM POHM PRODUCT POHM POHM PRODUCT POHM								¥	ALUMINUM	NUM	2024	K								
FORM THICK TEAM CAN		PROI	JUCT	LOGAL	l 		SPECE	MEN	CRA	СК	GROS	SS		Kapp			К _с			
Sheet 0.012 R.T. L.T 63.8 4.000 0.123 2.340 3.100 36.20 6.1.17*	CONDITION HEAT TREAT	FORM	THICK (fp.)	TEMP (°F)							ONSET (Kal) G.	MAX (Kel)	K (Ket√in)	K. MEAN	STAN DEV	K _e (Kel√in)	K _e MEAN	STAN	DAITE	REFER
Sheet 0.12								BUCK	ING OF	CRACKE	EDGES RE	STRAIN	Œ							
Sheet 0.12 R.T. LT 63.8 4.000 0.123 1.190 L.500 85.20 60.46* O.12 R.T. LT 63.8 4.000 0.123 2.340 2.900 46.00 86.22* O.13 Sheet 0.12 R.T. LT 63.8 4.000 0.123 2.400 46.00 86.22* Sheet 0.04 R.T. LT 60.6 6.450 0.040 2.650 26.30 6.269 6.323* Sheet 0.05 R.T. LT 62.8 8.000 0.123 1.200 1.900 46.00 6.22* Sheet 0.05 R.T. LT 62.8 8.000 0.123 1.200 1.900 46.00 6.22* Sheet 0.12 R.T. LT 63.8 8.000 0.123 1.200 1.900 6.260 1.1000 6.22* Sheet 0.12 R.T. LT 63.8 8.000 0.123 4.700 6.200 46.00 6.200* Sheet 0.12 R.T. LT 63.8 8.000 0.123 4.700 6.200 46.40 6.200* Sheet 0.12 R.T. LT 63.8 8.000 0.123 0.800 46.40 6.200* Sheet 0.12 R.T. LT 63.8 8.000 0.123 0.800 46.40 6.200* Sheet 0.12 R.T. LT 63.8 8.000 0.123 0.800 46.40 6.200* Sheet 0.12 R.T. LT 63.8 8.000 0.123 0.800 46.40 6.200* Sheet 0.14 R.T. LT 63.8 8.000 0.123 0.800 46.40 6.200* Sheet 0.14 R.T. LT 63.8 8.000 0.123 0.800 46.40 6.200* Sheet 0.14 R.T. LT 63.8 8.000 0.124 0.800 0.124 0.800 46.40 6.200* Sheet 0.14 R.T. LT 63.8 8.000 0.124 0.800 0.125 0.800 0.126 0.8			0.12			63.8	4.000		2.390	3.100	i	20.30	51.17*			76.14*			1970	78982
Sheet 0.12 R.T. L.T. 63.8 4.000 0.123 2.340 2.900 20.50 60.46* 0.12 0.12 63.8 4.000 0.123 0.390 1.000 46.00 36.22* 0.12 0.12 6.12 4.000 0.123 2.400 44.90 11371* Sheet 0.04 R.T. L.T 65.8 4.000 0.123 1.200 44.90 11371* Sheet 0.04 R.T. L.T 60.6 6.450 0.040 2.650 26.70 6.324* Sheet 0.04 R.T. L.T 60.6 6.450 0.040 2.850 26.30 6.344* Sheet 0.05 6.450 0.040 2.850 26.30 6.344* Sheet 0.05 6.450 0.040 2.850 26.30 6.34			0.12			53.8	4.000	-	1.190	1.800	i	35.20	60.93*			67.88*			1970	78982
Sheet 0.04 R.T. L.T 63.8 4.000 0.123 2.400 6.36 0.305 1.000 46.00 13.71* O.12 7. 63.8 4.000 0.123 2.400 0 44.00 113.71* Sheet 0.04 R.T. L.T 65.6 6.450 0.040 2.850 0 16.90 65.25* Sheet 0.012 R.T. L.T 63.8 8.000 0.123 4.700 4.900 19.00 69.20* Sheet 0.012 R.T. L.T 63.8 8.000 0.123 4.700 4.900 19.00 68.27* Sheet 0.004 R.T. L.T 63.8 8.000 0.123 0.800 1.900 19.60 68.23* Sheet 0.004 R.T. L.T 63.8 8.000 0.123 0.800 2.000 19.60 68.23* Sheet 0.004 R.T. L.T 63.8 8.000 0.123 0.800 2.000 19.60 68.23* Sheet 0.004 R.T. L.T 63.8 8.000 0.123 0.800 2.000 19.60 68.23* Sheet 0.004 R.T. L.T 63.8 8.000 0.123 0.800 2.000 19.60 68.23* Sheet 0.004 R.T. L.T 63.8 8.000 0.123 0.800 2.000 19.60 68.23* Sheet 0.004 R.T. L.T 63.8 8.000 0.123 0.800 2.000 19.60 69.20* Sheet 0.004 R.T. L.T 63.8 8.000 0.124 2.800 2.000 19.60 69.20*	្ ខ្	Ghood	0.12	£	! E	53.8	4.000		2.340	2.900	:	20.50	50.46*			67.62*			1970	78982
Sheet 0.012 R.T. 6.38 4.000 0.123 2.400 44.90 113.71* Sheet 0.044 R.T. L.T 6.06 6.450 0.040 2.650 36.60 6.323* Sheet 0.044 R.T. L.T 6.06 6.450 0.040 2.850 16.90 6.323* Sheet 0.044 R.T. L.T 6.06 6.450 0.040 2.850 16.90 6.324* Sheet 0.05 R.T. L.T 6.06 6.450 0.040 2.850 16.90 6.38* Sheet 0.05 8.000 0.049 4.70 6.70 19.10 19.20 6.38* Sheet 0.12 8.000 0.123 4.70 4.90 19.60 6.234* Sheet 0.12 8.000 0.123 4.70 6.80 46.4	2	1	0.12		5	53.8	4.000		0.390	1.000	:	46.00	36.22*	i	ì	€9.98	ı	ı	1970	78982
Sheet 0.04 R.T. L.T 65.8 6.450 0.040 2.650 36.0 6.035* Sheet 0.04 R.T. L.T 65.8 6.450 0.040 2.650 26.0 6.036* Sheet 0.04 R.T. L.T 65.8 6.450 0.040 2.820 26.0 6.036* Sheet 0.05 R.T. L.T 62.8 8.000 0.051 2.650 17.10 19.20 68.27* Sheet 0.12 R.T. L.T 63.8 8.000 0.123 0.800 2.000 46.40 62.24* Sheet 0.12 R.T. L.T 63.8 8.000 0.123 0.800 2.000 46.40 62.24* Sheet 0.12 R.T. L.T 63.8 8.000 0.123 0.800 2.000 46.40 62.24* Sheet 0.04 R.T. L.T 63.8 8.000 0.124 2.600 2.000 46.40 62.24* Sheet 0.04 R.T. L.T 63.8 8.000 0.124 2.600 2.000 46.40 62.24* Sheet 0.04 R.T. L.T 63.8 8.000 0.124 2.600 2.000 46.40 62.24* Sheet 0.04 R.T. L.T 63.8 8.000 0.124 2.600 2.000 46.40 62.24* Sheet 0.04 R.T. L.T 63.8 8.000 0.124 2.600 2.000 46.40 62.24* Sheet 0.04 R.T. L.T 63.8 8.000 0.124 2.600 2.000 46.40 62.24* Sheet 0.04 R.T. L.T 63.8 8.000 0.124 2.600 2.000 46.40 62.24* Sheet 0.04 R.T. L.T 63.8 8.000 0.124 2.600 2.000 46.40 62.24* Sheet 0.04 R.T. L.T 63.8 8.000 0.124 2.600 2.000 46.40 62.24* Sheet 0.04 R.T. L.T 63.8 8.000 0.124 2.600 2.000 46.40 62.24* Sheet 0.04 R.T. L.T 63.8 8.000 0.124 2.600 2.000 46.40 62.24* Sheet 0.04 8.T. L.T 63.8 8.000 0.124 2.600 2.000 46.40 69.24*			0.12			53.8	4.000		2.400	i	:	44.90	113.71*			i			1970	78982
Sheet 0.04 R.T. L.T 60.6 6.450 0.040 2.650 26.70 60.96* Sheet 0.04 R.T. L.T 60.6 6.450 0.040 3.900 16.90 64.84* Sheet 0.05 R.T. L.T 60.6 6.450 0.040 2.820 16.90 64.84* Sheet 0.05 R.T. L.T 62.7 8.000 0.049 4.770 6.760 17.10 19.20 62.37* Sheet 0.05 R.T. 62.7 8.000 0.041 4.700 4.900 46.40 8.73* Sheet 0.12 R.T E3.8 8.000 0.123 4.70 4.900 46.40 8.23* Sheet 0.12 R.T E3.8 8.000 0.123 0.90 46.40 8.23* Sheet 0.12 R.T E3.8 8.000 0.123			0.12			53.8	4.000		1.200	1.900	:	36.60	53.23*			73.79*			1970	78982
Sheet 0.04 R.T. L-T 50.6 6.450 0.040 2.820 16.90 64.84* 9.04 0.05 R.T. 50.6 6.450 0.040 2.820 16.90 64.84* Sheet 0.05 R.T. L.T 6.450 0.040 2.820 26.30 62.36* Sheet 0.05 R.T. L.T 62.7 8.000 0.051 2.660 19.10 19.20 68.27* Sheet 0.012 R.T. L.T 63.8 8.000 0.123 4.700 4.900 46.40 62.34* Sheet 0.12 R.T. L.T 63.8 8.000 0.123 4.70 6.260 46.40 69.20* Sheet 0.12 R.T. L.T 63.8 8.000 0.123 0.00 19.60 69.20* Sheet 0.02 R.T. L.T 63.8			0.04		1	50.6	6.450		2.650	i	ı	26.70	60.95*			-			1966	86734
Sheet 0.05 R.T. L.T 62.7 8.000 0.040 4.770 6.750 17.10 19.20 62.95* Sheet 0.05 R.T. L.T 62.7 8.000 0.041 4.770 6.750 17.10 19.20 68.27* Sheet 0.05 R.T. L.T 62.7 8.000 0.051 2.660 3.600 19.10 31.30 68.27* Sheet 0.12 R.T. E3.8 8.000 0.123 4.700 1.900 46.40 62.34* Sheet 0.12 R.T. L.T 63.8 8.000 0.123 0.900 46.40 62.34* Sheet 0.12 R.T. L.T 63.8 8.000 0.123 0.900 46.40 62.34* Sheet 0.01 R.T. L.T 63.8 8.000 0.123 0.900 46.40 62.34* Sheet 0.02 R.T. L.T	£	Sheet	0.04	R.T.	2	50.6	6.450	-	3.900	ı	1	16.90	54.84*		ŀ	1			1966	86734
Sheet 0.05 R.T. L.T 62.7 8.000 0.049 4.770 6.750 17.10 19.20 68.27* Sheet 0.05 R.T. L.T 62.7 8.000 0.061 2.660 3.600 19.10 31.30 68.27* Sheet 0.12 R.T. E3.8 8.000 0.123 4.700 4.900 46.40 52.34* Sheet 0.12 R.T. L.T 63.8 8.000 0.123 4.740 6.280 46.40 62.34* 0.12 R.T. L.T 63.8 8.000 0.123 0.00 46.40 62.34* 0.12 R.T. L.T 63.8 8.000 0.123 0.00 2.000 46.40 62.34* R.Sheet 0.01 R.T. L.T 63.8 8.000 0.124 2.600 3.300 46.40 62.34* R.Sheet 0.04 R.T. L.T			0.04			50.6	6.450	┵	2.820	i	,	26.30	62.95*			ı			1966	86734
Continuous Continuou	£	b	90.0	E	1	52.7	8.000		4.770	6.750	17.10	19.20	68.27*			88.25*			1970	78982
Sheet 0.12 R.T. L.T 63.8 8.000 0.123 0.800 2050 71.70* O.12 R.T. L.T 63.8 8.000 0.123 0.800 6.260 1960 65.20* O.12 R.T. L.T 63.8 8.000 0.123 0.800 1960 65.20* O.12 R.T. L.T 63.8 8.000 0.124 2.600 3.300 34.30 74.21* Sheet 0.04 R.T. L.T 61.7 81.7 81.00 0.040 3.880 2860 79.89*	:		90.0		5	52.7	8.000		2.660	3.600	19.10	31.30	68.73*	:	1	85.36*	-	ı	1970	78982
Sheet 0.12 R.T. L.T 53.8 8.000 0.123 0.800 1.900 46.40 52.34* O.12 R.T. L.T 53.8 8.000 0.123 0.800 2.000 46.40 62.34* O.12 R.T. L.T 51.7 8.700 0.124 2.600 3.300 34.30 74.21*			0.12			63.8	8.000		4.700	4.900	ı	20.50	71.70			75.21*			1970	78982
Sheet 0.12 R.T. L.T 63.8 8.000 0.123 4.740 6.280 19.60 69.20* 0.12 0.12 E.S.B 8.000 0.123 0.800 2.000 46.40 62.34* 0.12 0.12 E.S.B 8.000 0.124 2.600 3.300 46.40 62.34* Sheet 0.04 E.T. L.T 61.7 61.7 8.700 0.040 3.800 34.30 74.21*			0.12			63.8	8.000		0.800	1.900	;	46.40	62.34*			83.07*			1970	78982
0.12 63.8 8.000 0.123 0.800 2.000 46.40 52.34* 0.12 63.8 8.000 0.124 2.600 3.300 34.30 74.21*	EL T	Sheet	0.12	R.T.	7.	53.8	8.000		4.740	6.260	:	19.60	69.20*	:	!	78.70*	!	ı	1970	78982
Sheet 0.04 R.T. L.T 51.7 9.700 0.040 3.980 34.30 74.21*			0.12			63.8	8.000	-	0.800	2.000	-	46.40	62.34*			85.56*			1970	78982
Sheet 0.04 R.T. L.T 51.7 9.700 0.040 3.980 28.60 79.98*			0.12			63.8	8.000		2.600	3.300	ì	34.30	74.21*			87.46			1970	78982
	Т3	Sheet	0.04	R.T.	Ę	51.7	9.700	- 1	3.980	-	:	28.60	79.98*	:	!		i	ł	1966	86734
T3 Sheet BT 1.7 61.9 12.000 0.063 4.720 5.420 24.40 27.70 83.54*	2	S. Page	90.0	E-	Ę.	61.9	12.000		4.720	6.420	24.40	27.70	83.54*			92.79*			1966	67821
90.0			90.0	i	\$	61.9	12.000		3.080	3.810	23.30	33.20	76.14*	!	!	*6.67	i	1	1966	67821

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

							A	ALUMINUM	NOM	2024	Kc								
	PROI	PRODUCT				SPECIMEN	MEN	CRACK	CK #TH	GROSS	88 88		Kapp			К _с			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Kel)	WIDTH 7	THICK (in.) B	(in.)	FINAL (in.)	ONSET (Kei)	MAX (Kal)	K. (Keivin)	K	STAN	K _o (Kelvin)	K, MEAN	STAN	DATE	REFER
							BUCK	LING OF	CRACK!	BUCKLING OF CRACK EDGES RESTRAINED	STRAINE	Q;							
		0.03			62.0	20.000	0.032	6.260	7.070	20.00	27.60	82.90			99.78*			1966	67821
		0.03			62.0	20.000	0.032	3.450	4.860	22.80	36.40	86.33*			104.40*			1966	67821
73	Sheet	0.03	R.T.	7.	62.0	20.000	0.032	1.120	2.060	43.10	47.00	62.46*	83.5	9.0	85.10*	ı	ı	1966	67821
		0.03		1	62.0	20,000	0.032	7.460	9.500	16.30	22.40	84.00			100.98*			1966	67821
		0.03			52.0	20.000	0.032	0.640	1.200	47.60	48.50	48.66*			66.74*			1966	67821
		90.0			61.9	20.000	0.063	7.200	13.500	23.20	23.20	84.91			152.84*			1966	67821
		90.0			61.9	20.000	0.063	3.270	5.030	19.20	37.70	86.88*			110.30*			1966	67821
1	i	90.0	į		61.9	20.000	0.063	4.930	6.900	25.60	32.20	93.12*			114.53*			1966	67821
13	Sheet	90.0	H.		61.9	20.000	0.063	4.310	7.770	26.70	30.60	81.98	83.4	2.1	118.90*	ı	I	1966	67821
		90.06			61.9	20.000	0.063	0.960	2.600	38.50	43.60	53.62*			89.04*			1966	67821
		90:0			61.9	20.000	0.063	0.870	2.200	43.60	43.60	51.03*			81.66*			1966	67821
		90.0			53.3	20.000	0.080	7.350	8.950	20.80	24.80	92.05			106.46*			1966	67821
		90.0			63.3	20.000	0.080	0.700	1.440	61.90	61.80	54.36*			78.16*			1966	67821
£	Sheet	90.0	R.T.	2	53.3	20.000	0.080	6.090	6.450	21.30	29.00	85.44	85.6	6.4	98.71•	i	i	1966	67821
		90.0			53.3	20.000	0.080	3.310	4.960	29.20	34.20	79.33			99.14*			1966	67821
		90:0			63.3	20.000	0.080	1.270	1.900	46.46	48.00	67.96*			83.39*			1966	67821
Ę	i	90.0	£	k	52.7	24.000	0.049	7.000	13.500	17.00	27.60	96.64			159.57*			1970	78982
13	199US	90.0	K.T.	3	52.7	24.000	0.049	7.160	11.000	16.20	28.30	100.48	99.5	2.5	135.67*		ł	1970	78982

* NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

ALU	ALU	ALU	ALU	ALU	ALU	ALU	31	IMI	ALUMINUM	2024	Kc							-	
	PROI	PRODUCT	TRST		VIRLD	SPECIMEN	MEN	CRACK	KH.	GROSS	SS		K _{app}			Кc			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC		WIDTH (In.)	THICK (in.) B	INIT (In.) 2a.	FINAL (in.) 2a,	ONSET (Kai) o.	MAX (Kel)	K (Kei√in)	K. MEAN	BTAN	K _o (Kelvin)	K _o MEAN	STAN	DATE	REFER
							BUCK	LING OF	CRACK!	BUCKLING OF CRACK EDGES RESTRAINED	STRAIN	G5							
Ę	Sheet	90.0	R.T.	7	52.7	24.000	0.049	14.27	18.000	12.70	16.50	101.30			141.83*			1970	78982
Cont'd	Cont'd	90.0	Cont'd	Cont'd	62.7	24.000	0.049	2.320	7.400	34.00	42.20	81.03*	Cont'd	Cont'd	152.94*	Cont'd	Cont'd	1970	78982
		0.12			63.8	24.000	0.123	7.650	11.600	:	29.20	108.07			146.35*			1970	78982
		0.12			63.8	24.000	0.123	6.220	11.800	:	28.00	91.33			142.43*			1970	78982
٤	91-01	0.12	E		53.8	24.000	0.123	2.400	3.250	:	44.60	87.13*			101.93*			1970	78982
2	188	0.12	i	<u> </u>	63.8	24.000	0.123	2.400	4.400	1	44.60	87.13*	93.9	11.1	119.74*	1	ı	1970	78982
		0.12			63.8	24.000	0.123	14.35	16.200	:	15.40	95.15			111.14*			1970	78982
		0.12			53.8	24.000	0.123	14.39	17.800	ı	13.10	81.20			110.25			1970	78982
		90.0		1	61.9	30.000	0.063	3.670	6.710	27.50	39.70	96.21*			133.01*			1966	67821
Ę	Shoot	90.0	£	E	61.9	30.000	0.063	10.86	14.400	17.60	18.20	81.89			101.38			1966	67821
2	8	90.0	<u>:</u>	5	61.9	30.000	0.063	7.130	10.710	19.80	26.40	91.56	87.3	4.9	117.67	108.9	8.2	9961	67821
		90.0			61.9	30.000	0.063	6.730	8.090	22.00	28.80	88.40			107.53			1966	67821
13	Sheet	90:0	R.T.	T.L	43.4	6.000	090.0	2.000	2.350	ı	30.25	57.62*	ı	1	64.31*	-:	-	1966	86734
13	Sheet	90:0	R.T.	T:L	43.4	9.000	090.0	3.000	3.600	•	30.50	71.15•	i	ı	80.64*		i	1966	86734
E	Sheet	90.0	R.T.	7:	43.4	15.000	090'0	9.000	5.800	i	28.00	84.32*	i	-	93.27*		1	1966	86734
13	Sheet	90'0	R.T.	7.	43.4	18.000	0.060	6.000	7.200	ı	27.50	90.72*	1	1	102.82*		!	1966	86734
T2	Sheet	90.0	R.T.	T-L	43.4	21.000	090.0	7.000	8.600	1	27.40	97.63	i	ı	112.58*	:	:	1966	86734
13	Sheet	0.06	R.T.	T-L	43.4	24.000	0.060	8.000	9.600	1	26.70	101.71*	1	I	116.27*	!	1	1966	86734

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

		REFER		62308	62308		86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213
		DATE R		1962	1962		1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	6701
	·			- 1					-				1	1		1	-					Ĺ
		BTAN DEV			!					i					-					!		
	Kc	K _o MEAN			i					ı					ı					ı		•
		K _o (Ksi√in)		158.14*	160.52*		48.98*	59.56*	55.80*	48.06*	50.25*	49.50*	53.80⁴	76.02*	88.16*	76.06*	86.04*	80.08	80.47	72.22*	68.87*	70.78*
		STAN			2.					i					i					ı		
	Kapp	K,			134.7					i					i					i		
		K. (Keivin)	a	133.62	135.80	(ED	41.26*	41.00*	40.81*	38.16*	38.23*	38.34*	37.90*	46.27*	46.76*	46.53*	47.73*	48.46*	48.26*	48.29*	47.94	48.70*
K _C	SS	MAX (Ksl)	STRAINE	18.30	18.60	RESTRAIN	39.30	38.90	38.80	36.20	36.20	36.30	36.10	30.50	29.90	30.30	32.40	33.30	31.20	32.30	31.60	33.10
2024	GROSS	ONSET (Kei) G	BUCKLING OF CRACK EDGES RESTRAINED	i	1	BUCKLING OF CRACK RDGES NOT RESTRAINED	ï	35.90	35.40	30.10	32.40	ı		:	ı	i	17.10	19.90	17.40	16.30	15.00	15.70
ALUMINUM	CRACK	FINAL (in.) 2a,	P CRACK	28.420	28.390	HACK RD	0.800	1.030	0.960	0.870	0.920	0.900	1.000	1.992	2.215	2.002	2.080	1.940	2.040	1.830	1.790	1.760
LUM	CRA	INIT (In.) 2a.	LING O	24.00	24.00	NG OF	0.621	0.624	0.622	0.624	0.626	0.626	0.621	1.190	1.240	1.210	1.143	1.123	1.223	1.167	1.190	1.140
A	MEN	THICK (in.)	BUCK	0.080	0.080	BUCKL	0.061	0.061	0.061	0.063	0.063	0.063	0.064	0.092	0.092	0.092	0.124	0.124	0.124	0.125	0.126	0.127
	SPECIMEN	WIDTH (in.) W		48.000	48.010		2.000	2.000	2.000	2.000	2.000	2.000	2.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
	1	STR (Kal)		46.8	46.8		55.5	55.5	55.5	60.0	60.0	60.0	53.2	51.1	51.1	51.1	53.7	53.7	53.7	63.8	53.8	53.8
		SPEC			T-L					7					LT					1		
	TO CALL	TEMP (°F)		·	R.T.					R.T.					R.T.					F. I.		
	UCT	THICK (in.)		90:0	90:0		90.0	90.0	90.0	90.0	90.0	90.0	90:0	60.0	60.0	60.0	0.12	0.12	0.12	0.12	0.12	0.12
	PRODUCT	FORM			Sheet			<u>1</u>		Sheet				!	Sheet				I			
		CONDITION HEAT TREAT			T1					£1					ដ				E	2		

* NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

5 of 22

TABLE 7.5.2.2 (CONTINUED)

Phich Purch								₽ R	ALUMINUM	NCM	2024	K,								
Portion Thirton Thir		PROI	UCT	uo au			SPECI	MEN	CRA	СК ТН	GROS	38 88		K.pp			K _c			
Sheel 0.12 Could 0.12 Could 0.12 Could 0.12 1.00 0.13 0 1.00 0.12	CONDITION HEAT TREAT	FORM	THICK (In.)	TEMP (°F)	SPEC						ONSET (Kei) 0.		K. (Keivin)	K	STAN DEV	K _c (Kelvin)	K _c MEAN	STAN	DATE	REFER
Sheet 0.12 Contd 65.9 Anne of 2.2 Contd 66.9 Contd Contd Contd 66.9 Contd Liso 1.50								BUCKLIN	IG OF CI	RACK ED	GES NOT	RESTRAI	NED							
Sheel Caril Cari			0.12			55.8	3.000	-	1.165	1.780	16.70	32.30	48.23*			69.95*			1973	86213
0.15 0.12 0.12 0.12 0.12 0.12 0.12 0.12 1.207 1.840 15.10 20.10 46.89* 0.16 0.16 1.10	T3 Cont'd	Sheet Cont'd	0.12	R.T. Cont'd	Cont'd	55.8	3.000		1.150	1.800	17.80	32.50	48.12*	Cont'd	Cont'd	71.28	Cont'd	Cont'd	1973	86213
1.0 1.0			0.12			65.8	3.000		1.257	1.840	15.10	29.70	46.89*			66.84*			1973	86213
1.01 1.01 1.01 1.01 1.01 1.01 1.01 1.02			0.16			50.4	3.000		1.140	1.780	15.90	91.10	45.76			67.35*			1973	86213
Sheet 0.16 R.T. L.T. 50.4 3.00 0.16 1.160 11.70 30.50 46.49* 66.05* 66.05* 1.167 11.70 30.50 46.19* 66.05* 66.05* 11.70 11.70 30.50 46.19* 66.05* 66.05* 11.70 11.70 30.50 46.19* 66.05* 66.05* 11.70 11.70 30.50 46.19* 66.05* 66.05* 11.70 11.70 30.50 46.19* 66.05* 66.05* 11.70 11.70 30.50 46.19* 66.05* 66.05* 11.70 11.70 30.50 46.19* 66.05* 66.05* 11.70 11.70 11.70 46.29* 66.05* 11.70 11			0.16			60.4	3.000		1.163	1.820	16.90	30.40	45.34			67.53*			1973	86213
Sheat 0.16 R.T. L.T 6.06 3.00 0.163 1.150 1770 30.50 46.19* 66.02* 66.72* 1.973 1973 Sheat 0.16 1.150 1.150 1.700 1720 31.20 46.19* — 66.72* 1.973 1.973 0.16 0.16 3.000 0.163 1.150 1.700 16.70 46.19* — 66.72* 1.973 1.973 0.16 0.16 3.000 0.163 1.160 1.870 18.20 46.26* 7.86* 1.973 1.973 0.16 0.16 1.160 1.160 1.200 1.200 1.80 1.170 18.70 48.26* 7.26* 1.973 1.973 Sheet 0.12 4.000 0.125 1.40 1.70 1.70 1.70 1.70 1.70 1.70 1.70 1.70 1.70 1.70 1.70 1.70 1.70 1.70 1.70 1.70 1.70 1.70 1.70 <t< td=""><td></td><td></td><td>0.16</td><td></td><td>1</td><td>50.4</td><td>3.000</td><td></td><td>1.162</td><td>1.850</td><td>17.80</td><td>30.50</td><td>46.49*</td><td></td><td></td><td>€9.08</td><td></td><td></td><td>1973</td><td>86213</td></t<>			0.16		1	50.4	3.000		1.162	1.850	17.80	30.50	46.49*			€9.08			1973	86213
Sheet 0.16 R.T. L.T 50.6 3.00 0.163 1.750 1720 31.20 46.19* — 66.72* — 1973 0.16 0.16 2.00 0.163 1.265 1.710 15.70 28.70 45.26* 70.86* 70.86* 1973 1973 0.16 0.16 1.25 1.710 1.510 1.510 1.510 1.50 48.26* 70.86* 70.86* 1973 1973 Sheet 0.16 2.20 0.164 1.12 1.80 17.10 33.10 48.26* 70.86* 70.86* 1973 1973 Sheet 0.12 4.00 0.125 1.646 2.749 — 31.40 66.18* 70.86* 1973 1973 Sheet 0.12 4.00 0.125 1.645 2.749 — 43.20 66.18* — 19.35 19.35 19.35 19.35 19.35 19.35 19.35 19.35 19.35 19.35			0.16			9.09	3.000		1.163	1.780	17.70	30.50	45.49*			66.05*			1973	86213
1,16 1,16 1,16 1,16 1,16 1,16 1,17	T.	Sheet	0.16	R.T.	7	50.6	3.000	\rightarrow	1.150	1.760	17.20	31.20	46.19*	ı	:	66.72*	ı	1	1973	86213
Sheet 0.16 R.T. 6.38 3.000 0.163 1.140 1.810 16.00 32.10 48.26* 73.81* 70.86* 73.81* 70.86* 1973 Sheet 0.16 8.3 3.000 0.164 1.127 1.800 17.10 33.10 48.28* 72.60* 72.60* 1973 1973 Sheet 0.12 8.4 1.127 1.800 1.710 33.10 48.28* 72.60* 72.60* 1973 1973 Sheet 0.12 8.7 1.645 2.749 31.40 66.46* 91.72* 1973 1973 Sheet 0.08 8.7 1.200 0.081 2.878 31.50 66.44* 91.72* 91.72* 191.20* 191.20* 191.20* 191.20* 191.20* 191.20* 191.20* 191.20* 191.20*			0.16			50.6	3.000		1.255	1.710	15.70	28.70	45.26*			59.49*			1973	86213
Sheet 0.16 R.T. L.T. 55.0 0.164 1.177 1.800 17.10 33.10 46.26* 73.81* <			0.16			53.8	3.000		1.162	1.810	16.10	32.10	47.88*			70.85*			1973	86213
Sheet 0.16 R.T. L.T. 65.0 4.000 0.126 1.127 1.800 17.10 33.10 46.28* 72.60* <t< td=""><td></td><td></td><td>0.16</td><td></td><td></td><td>53.8</td><td>3.000</td><td>0.163</td><td>1.140</td><td>1.840</td><td>16.60</td><td>32.80</td><td>48.26*</td><td></td><td></td><td>73.81</td><td></td><td></td><td>1973</td><td>86213</td></t<>			0.16			53.8	3.000	0.163	1.140	1.840	16.60	32.80	48.26*			73.81			1973	86213
Sheet 0.12 R.T. LT 66.9 4.000 0.126 1.646 2.439 91.46 94.95e 1973 1973 N.B. 0.12 1.200 0.126 1.647 2.678 31.50 66.18* 94.95e 1973 1973 N.B. 0.08 1.200 0.081 2.430 43.20 86.60* 95.4* 1956 1956 Sheet 0.08 R.T. 1.200 0.081 2.910 43.10 95.64* 91.66 1956 No.8 R.T. L.T. 62.7 12.000 0.081 2.910 43.10 95.64* 91.66 1956 No.8 R.S. 12.000 0.081 2.910 43.10 95.64* 91.56 1950			0.16			53.8	3.000	0.164	1.127	1.800	17.10	33.10	48.28*			72.60*			1973	86213
Silved 0.12 A.1. L.1 66.9 4.000 0.126 1.627 2.678 31.50 66.18* 91.72* 91.72* 1973 0.08 A.2 12.00 0.081 2.430 41.40 92.77* 1956 Sheet 0.08 A.1 12.00 0.081 2.940 41.40 95.64* 1956 Sheet 0.08 A.1 12.00 0.081 2.940 41.40 95.64* 1956 Sheet A.2 12.000 0.081 2.980 41.30 95.64*	£	j	0.12	E	E	999	4.000	0.125	1.645	2.749	ı	31.40	56.46*			94.95*			1973	86213
0.08 R.T. L-T 52.7 12.000 0.081 2.430 43.20 86.60* 1956 1956 1956 1956 41.30 92.77* 1956 1956 1956 1956 1956 44.30 99.66* 44.30 99.66* 1956 1956 0.08 A 62.7 12.000 0.081 2.80 44.30 99.66* 1956	2	136000	0.12	į	5	6.99	4.000	0.125	1.627	2.678	,	31.50	56.18*	1	1	91.72*	1	ı	1973	86213
Shet 0.08 R.T. L.T 62.7 12.000 0.081 2.960 41.40 92.77* 1956 Shet 0.08 R.T. L.T 62.7 12.000 0.081 2.910 44.30 95.64* 1956 0.08 62.7 12.000 0.081 2.890 44.30 99.66* 1956 0.08 62.7 12.000 0.081 4.830 28.80 88.32* 1956			90.0			52.7	12.000	0.081	2.430	-	1	43.20	86.60*			:			1956	84367
Sheet 0.08 R.T. L.T 62.7 12.000 0.081 2.910 43.10 95.64* 1956 0.08 2.08 12.00 0.081 2.860 44.30 99.66* 1956 1956 2.06 12.00 0.081 4.830 28.80 88.32* 1956			90.0			62.7	12.000	0.081	2.960	:	ļ	41.40	92.77*						1956	84367
52.7 12.000 0.081 2.880 44.30 99.66* 1956 62.7 12.000 0.081 4.830 28.80 88.32* 1956	g	Sheet	90.0	R.T.	5	52.7	12.000	0.081	2.910	:	1	43.10	95.64	i	ı	ı	·	ı	1956	84367
52.7 12.000 0.081 4.830 28.80 88.32*			90.08			52.7	12.000	0.081	2.980	;	i	44.30	₽9.66			1			1956	84367
			90'0			52.7	12.000	0.081	4.830	i	i	28.80	88.32*						1956	84367

* NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

	Kc	K _o STAN DATE REFER		1956 84367	1956 84367	1956 84367	Cont'd Cont'd 1956 84367	1956 84367	1956 84367	1973 86213	1973 86213	1973 86213	1973 86213	1962 62308		1970 78982	1970 78982	1970 78982	1966 86734	1966 86734	1966 86734	
		r Ke (Ket√in)		i	ı	ı		!	1	109.70*	75.28	100.51*	92.41•	146.96	151.24*	€9.00	67.93	65.76*	144.74	151.02*	111.37*	Ĺ
		STAN DEV					Cont'd					ı			i	1		1		i		
	Карр	K. MEAN					Cont'd					!			!	:		ì		ı		_
		K. (Kelvin)	INED	92.78*	*1.07*	86.19*	75.30*	85.43*	72.69*	83.94*	62.88	82.52*	81.77	119.51*	118.90*	66.20*	64.99*	64.98*	86.94	87.76*	76.33	
Kc	SS	MAX (Ket)	RESTRA	39.70	26.80	17.60	61.70	27.90	60.90	32.20	49.80	37.10	24.20	20.70	20.60	30.60	18.00	18.00	21.30	21.50	18.70	
2024	GROSS	ONSET (Ket) 0.	BUCKLING OF CRACK EDGES NOT RESTRAINED	ı	ı	i	1	!	1	:	ı	i	:	:	ŀ	21.00	12.80	13.20	ı	1	1	
ALUMINUM	CRACK	FINAL (in.) 2a,	CRACK EI		ï			:	:	6.080	1.440	4.260	7.080	18.360	18.880	2.770	5.000	4.900	11.250	11.440	10.420	
NLUM.	CR	INIT (In.) 2a.	ING OF	3.180	4.740	4.950	1.330	4.820	1.280	3.990	1.010	3.010	6.010	15.00	15.00	2.600	4.820	4.850	7.500	7.500	7.500	
¥	IMEN	THICK (in.) B	BUCKL	0.081	0.081	0.081	0.081	0.081	0.081	0.062	0.062	0.063	0.063	0.163	0.163	0.500	0.509	0.509	0.253	0.255	0.515	l
	SPECIMEN	WIDTH (in.) W		12.000	12.000	12.000	12.000	12.000	12.000	15.800	15.820	15.810	15.810	29.990	30.010	8.000	7.960	8.050	15.000	15.000	15.000	
	ATE: D	STR (Ksl)		52.7	62.7	62.7	52.7	52.7	52.7	61.6	61.6	61.6	51.6	8.03	8.03	64.8	54.8	54.8	63.6	63.6	65.4	L
		SPEC				5	Cont'd					\$			5	7.		3		5		3
	1821	TEMP (°F.)				R.T.	Cont'd				Ē	į		Ę	<u>:</u>	R.T.	6		6	ij	Ē	K.T.
	UCT	THICK (in.)		90.0	90:0	90:0	90.0	90.08	90:0	90.0	90.0	90.0	90.0	0.16	0.16	0.50	0.50	0.50	0.25	0.25	0.50	
	PRODUCT	FORM				Sheet	Cont'd				5	138110		ć	1360HG	Plate	E	Line	į.	ann r	Ē	riate
		CONDITION HEAT TREAT				T.	Cont'd			· 5	ξ	3		Ę	81	13	ε	9	ξ	2	ξ	

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

11			4	ALUMINUM	INUM	2024	$\mathbf{K}_{\mathbf{c}}$								
	C TALLY		SPECIMEN	CR.	CRACK LENGTH	GROSS STRESS	SS		Карр			Кc			
SPEC		R WIDTH	THICK (in.) B	INIT (in.) 2a.	FINAL (in.) 2a,	ONSET (Kel) 0.	MAX (Kei)	K (Kei√in)	K,	BTAN DRV	K _o (Kei√in)	K _o MEAN	STAN	DATE	REFER
*****			BUCKL	ING OF	GRACK EI	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRA	INED							
	64.8	8 24.000	0.509	7.250	12.000	17.20	26.80	95.89			138.37*			1970	78982
	64.8	8 24.150	0.509	7.200	11.500	18.50	27.60	98.26			137.01*			1970	78982
	64.8	8 24.150	0.509	14.10	17.400	ı	15.50	93.54	95.9	2.4	124.29*	1	ı	1970	78982
	64.8	8 24.150	0.509	2.300	4.800	25.70	42.80	81.81*			120.47*			1970	78982
	47.8	8 2.000	0.061	0.621	1.040	34.40	35.20	36.95*			64.38*			1973	86213
	47.8	8 2.000	0.061	0.623	0.900	1	35.40	37.24*			48.27*			1973	86213
	47.8	8 2.000	0.062	0.625	1.050	28.00	34.70	36.57*			54.09*			1973	86213
3	44.4	4 2.000	0.063	0.626	1.030	28.30	34.10	36.01*	!	ı	52.21*	1	!	1973	86213
	44.4	.4 2.000	0.064	0.625	1.080	32.30	33.20	34.99*			63.17*	-		1973	86213
ı	46.2	2 2.000	0.064	0.620	0.980	į	33.90	35.59*			49.63*			1973	86213
	45.3	.3 3.000	0.092	1.220	2.372	i	28.00	43.26*			95.11*			1973	86213
T-L	45.3	.3 3.000	0.093	1.190	2.480	i	28.70	43.54*	i	ı	109.23		ı	1973	86213
	4	45.3 3.000	0.093	1.200	2.336	i	28.60	43.66			93.86*			1973	86213
	4	45.7 3.000	0.124	1.130	2.250	15.20	30.50	44.60*			92.69*			1973	86213
	4	45.7 3.000	0.124	1.178	i	16.60	29.30	44.13*						1973	86213
	4	45.7 3.000	0.124	1.148		16.90	29.80	44.06*			ı			1973	86213
	<u>_</u>	46.0 3.000	0.127	1.180	2.250	14.80	28.50	42.98*	!	!	86.61*	i	I .	1973	86213
	4	46.0 3.000	0.127	1.233	2.200	13.70	27.70	43.11*	·		80.74*			1973	86213
	_	46.0 3.000	0.128	1.137	2.160	15.00	29.50	43,30			83.28*			1973	86213

* NOTE: NET SECTION STRESS EXCREDS 80% OF YIBLD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION,

CONDITION HEAT TREAT FORM																		
	PRODUCT	£	ļ———	-	SPECIMEN	MEN	CRACK	K H	GROSS	88		Kapp			К _С			
	THICK (In.)	TEMP (°F)	SPEC	STR (Kel)	WIDTH 1	THICK I	INIT F	FINAL O	ONSET (Kel) G	MAX (Kal)	K. (Kelvin)	MEAN	STAN	K _e (Ketvin)	K _o MEAN	STAN	DATE	REFER
						SUCKLIN	GOFCR	ACK RDG	BUCKLING OF CRACK EDGRS NOT RESTRAINED	LESTRAD	NED							
	0.12	R.T.		48.1	3.000	0.129	1.110	2.190	17.10	30.10	43.47*			87.03*			1973	86213
Cont'd Cont'd	0.12	Cont'd	Cont'd	48.1	3.000	0.129	1.107	2.110	16.90	30.10	43.37*	Cont'd	Cont'd	81.76*	Cont'd	Cont'd	1973	86213
	0.16			43.2	3.000	0.161	1.183 2	2.110	14.70	27.50	41.52*			74.69*			1973	86213
	0.16			43.2	3.000	0.161	1.260	2.120	15.50	26.00	41.15*			71.15*			1973	86213
	0.16	-		43.2	3.000	0.162	1.160	2.050	15.20	27.40	40.82*			71.18*			1973	86213
	0.16	•		43.5	3.000	0.162	1.137	2.090	14.40	28.10	41.24*			75.18*			1973	86213
T3 Sheet	0.16	R.T.	.j.	43.5	3.000	0.162	1.202	2.110	15.90	27.00	41.26*	i	1	73.39*	i	ŀ	1973	86213
	0.16		1	43.5	3.000	0.162	1.242	2.070	14.20	26.10	40.86*			68.80*			1973	86213
	0.16		1	45.6	3.000	0.162	1.255	2.240	15.60	27.70	43.68			83.47*			1973	86213
	0.16		1	45.6	3.000	0.162	1,117	2.110	16.90	30.30	43.93*			82.29*			1973	86213
	0.16			45.6	3.000	0.162	1.130	2.160	15.70	30.20	44.16*			85.25*			1973	86213
	90'0			46.0	15.810	0.063	4.000	:	ì	29.10	75.96*			1			1973	86213
Ę	90.0	Ē	I	46.0	15.810	0.064	3.010	4.110	i	32.80	72.96*			86.99*			1973	86213
198UC C1	90'0	į	l	46.0	15.810	0.064	6.010	i	i	22.50	76.02	ŀ	1		ŀ	ı	1973	86213
	90'0			46.0	15.820	0.064	1.020	1.780	:	43.00	64.57*			72.47*			1973	86213
	90.0			44.0	24.000	0.063	9.000	9.600	i	28.40	108.18*			122.61*			1966	86734
	90:0	Ē	I	44.0	24.000	0.063	8.000	9.600		27.20	103.61			117.43*			1966	86734
350US	90.0		 }	44.0	24.000	0.063	8.000	9.600	1	27.90	106.28*	i	1	120.45•	i	1	1966	86734
	90'0			44.0	24.000	0.063	8.000	9.600	ı	27.80	105.90*			120.02			1966	86734

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

							¥	ALUMINUM	NOM	2024	K _c								
	PRO	PRODUCT	8			SPECIMEN	MEN	CRACK	CK *TH	GROSS	88 88		Кирр			K _c			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Kel)	WIDTH (fn.)	THICK (fn.) B	INITA (a.)	FINAL (in.) 2a,	ONSET (Kel)	(Kel)	K (Kelvin)	K MEAN	STAN	K _o (Kat√in)	K, MEAN	STAN	DATE	REFER
							BUCKLII	VG OF C	BUCKLING OF CRACK EDGES NOT RESTRAINED	GES NOT	RESTRAI	NED							
ξ	Choot	0.16	Ę	Ė	46.4	30.000	0.164	15.00	18.900	:	18.20	105.06*			133.83*			1966	86734
:	190115	0.16	į	7.	46.4	30.000	0.165	15.00	18.450	;	18.20	105.06*	i	i	129.94	i	1	1966	86734
Ę.	Doto	0.25	£	Ē	47.3	15.000	0.254	7.500	9.650	ï	19.30	78.78*			103.08*			1966	86734
	200	0.25		2	47.3	15.000	0.255	7.500	9.950		19.40	79.19*	ŀ	ı	107.98*	ı	ı	1966	86734
2	Dieta	0.50	Ē	 E	49.2	15.000	0.516	7.500	10.350	ı	15.70	64.08			92.54			1966	86734
	1 1800	0.50	1	3	49.2	15.000	0.519	7.500	10.400	ı	16.20	66.12	65.1	1.4	96.20*	ı	ı	1966	86734
E.	Sheet	0.09	2	į	44.3	16.000	0.095	4.000	6.420	18.10	29.80	77.71*		_	105.29*			1973	86213
		60.0	5	2	44.3	16.000	0.095	4.000	6.530	15.80	29.30	76.41*		1	104.82*	ı	!	1973	86213
1351	4	0.25	£	£	56.4	4.000	0.246	1.733	2.627	ı	29.00	54.25*			82.17*			1973	86213
		0.25		i	8.99	4.000	0.247	1.727	2.706	i	29.80	55.60*		1	88.08*	ı	!	1973	86213
	,	0.50			49.0	4.000	0.498	1.789	ı	ï	28.00	63.70*	-		ı			1966	86734
1361	5	0.50	E	E	49.0	4.000	0.503	1.880	ı	i	28.00	55.95*			ł			1966	86734
		0.50	i		64.0	4.000	0.507	1.673	:	15.80	30.30	55.17*	1	ŀ	i	i	I	1973	86213
		0.50			64.3	4.000	0.508	1.653	:	15.70	30.70	55.40*			!			1973	86213
		0.50			49.0	12.000	0.441	7.750	ı	:	18.00	86.42*			ı			1966	86734
T351	Plate	0.50	R.T.	7	49.0	12.000	0.444	2.000	ı	ı	29.10	91.56*	ı	ı	ı	1	1	1966	86734
		0.50			49.0	12.000	0.448	9.620	ı	ı	9.00	63.19*					l	1966	86734

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

Part								¥	ALUMINUM	NUM	2024	K,								
Purity Thirty T		PROI	DUCT				SPECII	MEN	CRA	CK	GROS	88		Kapp			К _С			
Phale 1,00 R.T. 1,00 R.T. 1,00	CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)				THICK (In.)			ONSET (Kei) _G	MAX (Kel)	K (Kel√in)	K	STAN	K _o (Kalvin)	K _o MEAN	STAN	DATE	REFER
Plate 1.00 R.T. Case 200 1.00 <th< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th>_</th><th>BUCKLIN</th><th>(G OF C</th><th>RACK ED</th><th>GES NOT</th><th>RESTRAI</th><th>NED</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th<>							_	BUCKLIN	(G OF C	RACK ED	GES NOT	RESTRAI	NED							
Plate 1.00 R.T. T.A. 682 2.600 1.00 5.60 7.286 6.78 6.78 6.78 1.18.78 1.03 1.03 1.18.78 1.03			1.00			58.2	20.000		4.850	7.550	!	28.00	80.21			105.89			1973	86213
Harmonian Harm	T351	Plate	1.00	R.T.	 :	58.2	20.000		2.610	6.250	:	35.60	72.85	78.6	6.1	118.78*	107.1	1.8	1973	86213
Plate 0.25 R.T. 4.11 4.00 0.256 1.79 2.50 4.65 4.65 6.539 6.539 6.539 6.539 6.539 6.539 6.539 6.539 6.539 6.539 1.41 6.539 6.539 1.41 6.539 1.41 6.539 1.41 6.539 1.41 6.539 1.41 6.539 1.41 6.539 1.41 1.41 1.41 1.41 1.41 1.41 1.41 1.41 1.41 1.41 1.41 1.41 1.41 1.41 1.41 1.41 <th< td=""><td></td><td></td><td>1.00</td><td></td><td></td><td>58.2</td><td>20.000</td><td></td><td></td><td>10.000</td><td>ŀ</td><td>23.00</td><td>82.59</td><td></td><td></td><td>108.40</td><td></td><td></td><td>1973</td><td>86213</td></th<>			1.00			58.2	20.000			10.000	ŀ	23.00	82.59			108.40			1973	86213
Plate 0.25 R.T. 7.14 4.00 0.256 1.80 2.240		i	0.25	į		47.1	4.000		1.790	2.500	!	23.80	45.69*			63.28			1973	86213
Plate 0.050 R.T. T.L. 4.86 1.670 0.500 23.60 7.141 0.50 102.00* 1973	1351	Piate	0.25	K.I.	T-F	47.1	4.000		1.860	2.240	ŀ	22.90	45.35*	i	!	53.80*	ı	1	1973	86213
Piate 0.50 R.T. 1-L. 4.86 1.00 0.50 6.50 8.50 23.50 70.77 71.1 0.5 10.00 1.00 R.T. 1.00 8.50 24.00 68.75 24.00 68.75 24.00 68.75 24.00 68.75 24.00 68.75 24.00 68.75 24.00 68.75 24.00 68.75 24.00 68.75 24.00 68.75 24.00 68.75 24.00 68.75 24.00 68.75 24.00 68.75 24.00 41.20 41.20 41.10 41.10 41.20 41.20 11.21 1973 1973 1973 1973 1973 1973 1973 1974	***************************************		0.50	(48.6	14.970		4.970	7.900	ı	23.80	71.41			102.00*			1973	86213
Plate 1.00 R.T. T.L. 62.0 20.000 1.02 6.50 1.00 6.50 1.00 6.50 1.00 6.50 1.00 6.50 1.00 6.50 1.00 6.50 1.00	1351	Figte	03.0	K.I.	3	48.6	15.000		000.9	8.600	1	23.50	70.77	71.1	9.0	109.59*	ı	i	1973	86213
Plate 1,00 R.T. T.L. 62.0 20.00 1,010 19.90 71.46 67.8 4.2 94.63 19.73 19.73 19.73 19.73 19.90 11.46 11.46 11.46 11.46 11.46 11.46 11.21 19.73 19.73 19.73 19.73 19.73 19.73 11.74 11.75 41.30 41.56 41.30 41.56 41.30 41.64 78.74 19.73 19.73 19.73 19.73 19.73 19.73 19.73 19.73 19.73 19.73 19.73 19.73 19.73 19.73			1.00			52.0	20.000		4.850	8.500	1	24.00	68.75			+96'86			1973	86213
Sheet 0.06 R.T. L.T 6.36 0.02 0.05 1.100 41.50 41.50 41.50 41.50 41.50 41.50 41.50 41.50 41.50 41.50 41.50 41.50 41.50 41.50 41.50 41.50 71.21* 1973 1973 Sheet 0.06 R.T. 2.00 0.062 0.625 1.280 37.40 39.53* 72.46* 1973 1973 Sheet 0.04 37.5 1.260 1.280 27.40 39.53* 17.46* 1973 Sheet 0.04 1.500 0.040 1.500 27.40 50.66* 17.40 17.41* 17.41* 17.41*	T351	Plate	1.00	R.T.	17	62.0	20.000	-		10.100	ı	19.90	71.46	67.8	4.2	94.63	1		1973	86213
Sheet 0.06 R.T. L.T 63.6 2.000 0.062 0.625 1.560 41.30 44.16* 71.21* 1973 1973 Sheet 0.06 R.T. 4.2 2.000 0.062 1.280 41.90 44.16* 72.46* 1973 1973 Sheet 0.06 R.T. 4.6 2.000 0.062 0.625 1.280 37.50 39.53* 88.46* 1973 Sheet 0.04 1.80 27.40 60.66* 27.40 60.66* 1973 1973 Sheet 0.04 1.80 27.40 60.66* 1.80 23.00 62.66* 1.90 1.90 1.90 1.90 1.90 1.90 1.90 <			1.00			62.0	20.000	-	2.610	6.450	!	30.90	63.23			105.18*			1973	86213
Sheet 0.06 R.T. T.L. 65.4 2.000 0.062 0.625 1.250 41.90 44.16* 78.77* 78.77* 78.77* 78.77* 78.77* 78.74* <	Ę	i	90.0	Ę		63.6	2.000		0.625	1.160	,	41.30	43.53*			71.21*			1973	86213
Sheet 0.06 R.T. T.L. 66.4 2.000 0.062 0.625 1.280 37.40 39.43* 72.46* 1973 Sheet 0.06 A.S. 1.280 37.50 1.280 37.50 1.280 37.50 1.280 27.40 50.06* 19.50 19.50 19.50 19.50 19.50 19.50 19.50 19.50 19.50 19.50 19.50 19.50	100) and c	90.0		<u>;</u>	63.6	2.000		0.625	1.250	:	41.90	44.16*	i	i	78.77*	ı	i	1973	86213
Sheet 0.06 R.T. 1-D 56.4 2.000 0.040 1.820 37.50 39.53* 68.46* 1973 Sheet 0.04 4.500 0.040 1.830 27.40 60.06* 29.00 62.66* 1966 1966 1966 1966 29.00 62.66* 29.00 62.66* <t< td=""><td>Ę</td><td>ŧ</td><td>90.0</td><td>Ē</td><td></td><td>56.4</td><td>2.000</td><td>-</td><td>0.625</td><td>1.280</td><td>1</td><td>37.40</td><td>39.42*</td><td></td><td></td><td>72.45*</td><td></td><td></td><td>1973</td><td>86213</td></t<>	Ę	ŧ	90.0	Ē		56.4	2.000	-	0.625	1.280	1	37.40	39.42*			72.45*			1973	86213
8heet 0.04 R.T. L.T 676 0.040 1.960 27.40 60.06* 0 27.40 60.06* 1960 1.	136	Sheet	90.0	K. I.	1.	56.4	2.000	_	0.625	1.220	:	37.50	39.53*	:	i	68.46*	:	ı	1973	86213
Sheet 0.04 R.T. L.T 37.5 7.500 0.040 1.380 29.00 52.66* 1960 1.980 1960 1			0.04			37.5	7.500		1.950	;	ï	27.40	£0.06*			!			1966	86734
Sheet 0.04 R.T. L.T 37.5 7.500 0.040 0.500 40.30 35.81* 40.30 35.81* 1966 0.04 R.T. 1.T 37.5 7.500 0.040 1.100 35.60 47.43* 1966 1966			0.04			37.5	7.500	0.040	1.930	-	· i	29.00	52.66	_		ï			1966	86734
37.5 7.500 0.040 1.100 35.60 47.43* 1966 35.99* 1966	<u>z</u>	Sheet	0.04	R.T.	5	37.5	7.500		0.500	;	-	40.30	35.81*	ı	i	1	ı	ı	1966	86734
37.5 7.500 0.040 0.500 40.50 35.99*			0.04		<u>.</u>	37.5	7.500	- i	1.100	-	1	35.60	47.43*			1			1966	86734
			0.04			37.5	7.500		0.500	·	:	40.50	35.99*			I			1966	86734

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

				¥	ALUMINUM	NOM	2024	К _с								
	 		SPECIMEN	MEN	CRACK	СК ЭТН	GROSS	SS		Kapp			Кc			
SPEC			WIDTH 1	THICK (In.)	INIT (in.) 2a.	FINAL (in.) 2a,	ONSET (Kei) 0,	MAX (Kel)	K (Kelvin)	K. MEAN	STAN DEV	K _o (Keivin)	K _o MEAN	STAN	DATE	REFER
				BUCKLE	VG OF C	RACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRAI	NED							
1		37.5	7.500	0.040	4.100	ı	i	16.83	52.84*						1966	86734
		37.5	7.500	0.040	0.540	:	ï	39.60	36.59*			ł			1966	86734
!		37.5	7.500	0.040	6.000	ı	:	12.14	48.11*			:			1966	86734
Cont'd		37.5	7.500	0.040	4.600		ï	12.13	43.16*	Cont'd	Cont'd	i	Cont'd	Cont'd	1966	86734
		37.5	7.500	0.040	1.000	:	1	36.30	46.00*			;			1966	86734
]	٠. ا	37.5	7.500	0.040	0.500	ı	1	39.20	34.84			:			1966	86734
-	ബ	37.5	7.500	0.040	3.860	ı	ı	17.47	51.76*			:			1966	86734
	4	41.6	7.500	0.064	1.500	i	ı	34.90	54.93*			:			1966	86734
	4	41.6	7.500	0.064	1.020	:	ı	37.60	48.14*			:			1966	86734
	4	41.6	7.500	0.064	0.500	ı	ı	42.00	37.32*			1			1966	86734
	4	41.6	7.500	0.064	0.800	:	1	40.00	45.16*			!			1966	86734
	· 1	41.6	7.500	0.064	1.000	ı	-	37.70	47.77*			i			1966	86734
<u> </u>	,	41.6	7.500	0.064	2.100	i	;	30.70	€8.62*			1			1966	86734
! {	,	41.6	7.500	0.064	0.500	:	:	41.20	36.61*	1	i	ï	i	ì	1966	86734
I		41.6	7.500	0.064	4.030	ı	i	17.80	54.94*			ı			1966	86734
1		41.6	7.500	0.064	2.000	:	ï	12.13	48.08*			ı			1966	86734
		41.6	7.500	0.064	0.500	!	i	42.30	37.59*			:			1966	86734
		41.6	7.500	0.064	3.100	i	!	12.13	29.99			:			1966	86734
		41.6	7.500	0.064	3.900	ŀ	i	18.50	65,34*			1		,	1966	86734

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

							IA AI	ALUMINUM	NOM	2024	Kc								
	PROI	PRODUCT	E a	<u> </u>		SPECIMEN	MEN	CRACK	CK	GROSS STRESS	SS SS:		Kapp			К _С			
CONDITION HEAT TREAT	FORM	THICK (In.)	TEMP (*F)	SPEC		WIDTH 1 (In.) W	THICK (in.)	INIT F	FINAL (in.) 2s,	ONSET (Kai) o,	MAX (Ksi)	K (Kei√in)	K.	STAN	K _o (Keivin)	K _o MEAN	BTAN DEV	DATE	REFER
						_	BUCKLIN	G OF C	ACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRA	INED							
		0.04	•		37.7	7.500	0.040	0.550	ı	1	38.10	35.53*			1			1966	86734
		90.04		اا	37.7	7.500	0.040	4.020			14.87	45.79*			-			1966	86734
		0.04		<u>.</u>	37.7	7.500	0.040	0.500	ï	1	38.90	34.57*			:			1966	86734
		0.04		اا	37.7	7.500	0.040	0.500	i	-	39.30	34.92*			ı			1966	86734
		0.04			37.7	7.500	0.040	2.020	1	1	27.70	51.67*			-			1966	86734
i		0.04	E		37.7	7.500	0.040	1.050	;	:	35.50	46.15*			-			1966	86734
14	Sheet	90.04	# #:		37.7	7.500	0.040	0.530	:	-	38.10	34.87*	ı	:	i	ı	ł	1966	86734
		0.04		!	37.7	7.500	0.040	1.100	i		34.20	45.56*			1			1966	86734
		0.04		I	37.7	7.500	0.040	2.060	ı	1	27.30	51.53*			1			1966	86734
		0.04			37.7	7.500	0.040	6.350	i	1	12.13	53.30*			1			1966	86734
		0.04		<u>-</u>	37.7	7.500	0.040	4.000	:	ı	16.00	49.03*			1			1966	86734
-		0.04			37.7	7.500	0.040	9.000	i	1	12.14	48.11*			ı			1966	86734
		90:0		1	41.4	7.500	0.064	2.080	i	į	28.00	63.16			1			1966	86734
		90.0			41.4	7.500	0.064	1.100	ı	ı	35.20	46.89*			ı			1966	86734
		90.0		1	41.4	7.500	0.064	4.300	i	1	14.63	48.24*			1			1966	86734
74	Sheet	90.0	R.T.	7:L	41.4	7.500	0.064	0.510	;	:	37.90	34.02*	l	ŀ	:	i	i	1966	86734
		90.0		1	41.4	7.500	0.064	0.500	1	,	39.40	35.01			i			1966	86734
		90.0		1	41.4	7.500	0.064	1.960	i	i	29.70	54.42*			•			1966	86734
		90'0			41.4	7.500	0.064	3.900	ı	ı	17.58	62.59*			i			1966	86734

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

13 of 22

TABLE 7.5.2.2 (CONTINUED)

							¥	ALUMINUM	NOM	2024	Kc								
	PROI	PRODUCT	Ę.			SPECIMEN	MEN	CRACK	СК	GROSS	SS		Kapp			Kc			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC		WIDTH 7	THICK (in.)	INIT (in.)	FINAL (in.) 2a,	ONSET (Kei) o.	MAX (Kei)	K (Ket√in)	K	STAN	K _o (Keivin)	K _o MEAN	STAN	DATE	REFER
							BUCKLIN	GOFC	RACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRA	INED							
		90.0			41.4	7.500	0.064	0.500	:	ı	40.80	36.26*			-			1966	86734
		90:06			41.4	7.500	0.064	5.200	ı	ı	11.54	48.45*			1			1966	86734
T4 Cont'd	Sheet Cont'd	90.0	R.T. Cont'd	T.L Cont'd	41.4	7.500	0.064	0.560	:	:	38.80	36.52*	Cont'd	Cont'd	:	Cont'd	Cont'd	1966	86734
		90.0		1	41.4	7.500	0.064	4.100		ı	16.00	50.23◆						1966	86734
		90:0			41.4	7.500	0.064	1.150	ï	:	34.70	47.33*						1966	86734
		90.0			54.7	2.000	0.062	0.621	0.860	ï	39.10	41.05*			51.44*			1973	86213
Te	Sheet	90.0	R.T.	17	54.7	2.000	0.062	0.622	0.930	ı	39.70	41.76*	:	1	55.60*	;	!	1973	86213
		90.0			54.7	2.000	0.062	0.624	0.850	;	39.30	41.42*			51.24*			1973	86213
		90'0			54.2	2.000	0.062	0.622	0.790	ı	35.80	37.66*			44.21*			1973	86213
ध	Sheet	90'0	R.T.	7:L	54.2	2.000	0.062	0.623	0.840	i	36.00	37.87*	!	ı	46.52*	!	1	1973	86213
		90.0			54.2	2.000	0.062	0.622	0.880	i	35.10	36.92*			47.01*			1973	86213
							BUCK	LING OF	CRACK	BUCKLING OF CRACK EDGES RESTRAINED	ESTRAIN	QΝ							
T62 (GQ)	Sheet	0.13	R.T.	ŗ	58.7	5.980	0.126	2.010	i	i	29.71	66.60	1		91.80	i		1978	GD005
Te9 (CO)	50	0.13	Đ		58.7	15.970	0.126	4.000	:	'	28.87	75.30			82.30			1978	CD006
(20) 201	188115	0.13	i.i.	5	58.7	16.000	0.126	4.030	:	1	29.17	76.40	75.9	9.0	143.70	ŀ	ı	1978	GD005
65, 652	10	0.13	E	Ė	67.0	6.990	0.125	2.030	;	ı	25.78	49.40			64.00			1978	GD006
(An) 701	Japane	0.13	1.2	3.1	67.0	6.990	0.125	1.960	1	ı	27.78	52.20	8.03	2.0	62.00	63.0	1.4	1978	GD006
TRP (WO)	- d	0.13	E A	F	:	6.000	0.125	2.080	!	i	27.87	64.50			73.00			1978	GD006
		0.13		<u>.</u>	1	5.980	0.126	1.990	;	1	28.40	53.90	54.2	0.4	81.20	77.1	6.8	1978	GD005

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

		REFER		GD005	CD005	GD006	GD005	GD005	GD005	86734	86734	86734	86734	86734	GD005	GD005	GD005	86734	86734	86734	86734
		DATE		1978	1978	1978	1978	1978	1978	1966	1966	1966	1966	1966	1978	1978	1978	1966	1966	1966	1966
		STAN		i		2.1		80			i		;	;		0	· · · · ·	;	i.	i	i
	К _с	K _o MEAN		:		72.4		65.4			ı		1	:		57.3	!	:	ŀ	:	ı
		K _e (Kelvin)		139.20	73.80	70.90	91.10*	62.70	68.10		i	i	i	60.29	69.60	65.70	56.80	64.51	67.78	69.85	68.15
		STAN		-		0.1		2.8			3.2		;			6.0					ı
	Карр	K		ŧ		51.7		55.4			46.2		·			44.4					
		K. (Ket√in)	GD.	76.60	51.70	61.60	58.60	53.30	54.20	42.59	47.92	48.23	55.27	51.62	44.70	43.30	45.10	56.92	61.03	62.71	62.47
К _С	SS	MAX (Kei)	ESTRAIN	29.37	27.51	27.45	30.64	28.09	28.35	21.90	21.90	23.70	19.69	27.10	23.32	22.88	23.24	18.90	18.50	17.60	16.40
2024	GROSS STRESS	ONSET (Kel) G	EDGES R	:	ı	:	ı	1	1	ı	ı	ŀ	-	ŀ	1	ì	:	ì	i	ı	:
INUM	CRACK	FINAL (in.) 2a,	BUCKLING OF CRACK EDGES RESTRAINED	1	ł	ı	ŀ	i	ı	ı	i	:	:	2.500	1	:	!	6.000	7.000	8.200	9.100
ALUMINUM	CR/ LEN	INIT (in.) 2a,	KLING O	4.000	1.960	1.960	2.010	1.990	2.010	2.100	2.500	2.250	4.000	2.000	2.020	1.980	2.060	2.000	9.000	7.000	8.000
,	SPECIMEN	THICK (in.) B	BUC	0.126	0.125	0.126	0.125	0.126	0.126	0.040	0.040	0.040	0.040	090.0	0.126	0.126	0.126	090:0	090.0	0900	090'0
	SPEC	WIDTH (in.) W		15.980	6.990	6.980	6.980	6.990	6.990	6.450	6.450	6.450	9.700	6.000	6.990	000.9	6.010	15.000	18.000	21.000	24.000
	1	STR (Kel)		ı	1	:	64.8	64.8	64.8	65.6	9.29	65.6	65.1	62.0	64.1	64.1	64.1	62.0	62.0	62.0	62.0
		SPEC		1.1	Ē			17			LT		LT	7:		7:L		T·L	T-L	T·L	T-L
	£0£	TEMP (°F)		R.T.	E	M. I.		R.T.			R.T.		R.T.	R.T.		R.T.		R.T.	R.T.	R.T.	R.T.
	UCT	THICK (In.)		0.13	0.13	0.13	0.13	0.13	0.13	0.04	90.04	0.04	0.04	90.0	0.13	0.13	0.13	90.0	90.0	90:0	90'0
	PRODUCT	FORM		Sheet	100		k	Sheet			Sheet		Sheet	Sheet	· · · ·	Sheet		Sheet	Sheet	Sheet	Sheet
		CONDITION HEAT TREAT		T62 (WQ)	OW) ear			181			181		T81	T81		T81		T81	T81	Т81	T81

• NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

15 of 22

							¥	ALUMINUM	INUM	2024	X.								
	PROI	PRODUCT	150			SPECIMEN	MEN	CRA	CRACK	GROSS	SS		Kapp			Кc			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPBC OR	STR (Kel)	WIDTH (In.)	THICK (in.) B	INIT (in.) 2a,	FINAL (in.) 2a,	ONSET (Kei) 0.	MAX (Kai)	K. (Kelvin)	MEAN	STAN	K _o (Kelvlin)	K _e MEAN	STAN DEV	DATE	REFER
							BUCKLI	NG OF C	RACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRA	INED							
181	Sheet	90.0	-65	1.7	67.0	9.000	0.065	2.950	:	ı	28.50	65.76		i	:	1	!	1966	86734
		90.0			68.0	2.000	0.061	0.625	0.970	ı	35.40	37.31			\$1.37*			1973	86213
		90.0			68.0	2.000	0.061	0.619	1.065	:	36.10	37.82			£6.99*			1973	86213
		90.0		1	68.0	2.000	0.061	0.619	0.940	1	38.20	40.02			53.97*			1973	86213
		90.0			68.0	2.000	0.061	0.617	1.040	ì	36.60	38.26			£6.54*			1973	86213
T81	Sheet	90.0	R.T.	2	68.0	2.000	0.061	0.620	1.070	i	37.00	38.84	38.0	9,0	£8:73*	ŀ	ı	1973	86213
		90.0			68.0	2.000	0.062	0.625	1.040	ì	36.00	37.94			•19'99			1973	86213
		90.0			69.1	2.000	0.062	0.624	0.840	i	35.90	37.84			46.39*			1973	86213
		90.0		1	69.1	2.000	0.062	0.623	0.870	ì	35.40	37.24			46.99*			1973	86213
		90.0			69.1	2.000	0.062	0.623	0960	1	36.50	38.39			52.50*			1973	86213
		0.12			65.2	3.000	0.123	1.000	1.550	ı	35.20	47.41*			66.20*			1973	86213
•		0.12			65.2	3.000	0.123	1.080	1.690	ì	34.00	48.19*			69.61			1973	86213
ğ	Shoot	0.12	E-	F	65.2	3.000	0.123	1.070	1.680	:	32.70	46.06			66.53*			1973	86213
	8	0.12	į	5	64.9	3.000	0.125	1.060	1.620	i	33.10	46.33	46.2	9.0	64.93*	i	!	1973	86213
		0.12			64.9	3.000	0.125	1.040	1.660	i	33.90	46.85			68.14*			1973	86213
		0.12			64.9	3.000	0.125	1.000	1.580	ı	33.70	45.39			64.53*			1973	86213
ž	e de	90:0	Ę.	£	69.0	9.000	0.064	3.320	1	I	27.70	69.15			1			1966	86734
	88	90.0		5	69.0	9.000	0.065	3.380	ı		28.70	72.54	70.8	2.4	1	ı	i	1966	86734

• NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

							¥	ALUMINUM	INUM	2024	K _C								
	PRODUCT	UCT	TEST		VIRI.D.	SPECIMEN	MEN	CR	CRACK LENGTH	GROSS	SS		Кврр			Кc			
0	FORM	THICK (in.)	TEMP (°F)	SPRC		WIDTH (fa.) W	THICK (in.) B	(in.) 2a.	FINAL (in.) 2a,	ONSET (Kei) G.	MAX (Ksi)	K (Kalvin)	K,	STAN	Ko (Kelvlin)	K _o MEAN	STAN	DATE	REFER
							BUCKLI	ING OF (RACK EL	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRA	INED							
đ		90.0	E	E	69.0	20.000	0.065	11.50	i	į	14.00	75.62			i			1966	86734
5	ğ	90.0		5	69.0	20.000	0.065	11.25	i	i	14.70	77.58	76.6	1.4	i	1	ı	1966	86734
න්	Sheet	90:0	250	5	69.0	9.000	0.065	3.600	1	1	32.40	85.66*	;	:	1		I	1966	86734
		90.0		1	66.7	2.000	0.061	0.617	0.985	1	33.30	34.81			48.93*			1973	86213
	1	90.0		1	66.7	2.000	0.061	0.625	0.980	1	35.20	37.10			51.54*			1973	86213
	<u> </u>	90.0			66.7	2.000	0.061	0.613	096.0	ŀ	33.70	35.09			48.47*			1973	86213
	[90.0			66.7	2.000	0.061	0.625	1.065	i	35.40	37.31			55.88*			1973	86213
ති	Sheet	90.0	R.T.	T.L	66.7	2.000	0.061	0.625	0.940	:	33.00	34.78	35.5	=	46.63*	ı	i	1973	86213
	i	90.0		1	66.7	2.000	0.061	0.617	0.985	i	33.60	35.13			49.37*			1973	86213
	1	90.0			67.2	2.000	0.062	0.622	0.840	i	32.30	33.98			41.74*			1973	86213
	1	90.0		1	67.2	2.000	0.062	0.623	0.860	ı	34.40	36.18			45.26*			1973	86213
		90'0			67.2	2.000	0.062	0.622	0.960	ı	33.60	35.34			47.90*			1973	86213
	1	0.12			66.4	3.000	0.123	1.060	1.420	:	30.50	42.69			€3.09*			1973	86213
	1	0.12		1	66.4	3.000	0.123	1.000	1.340	:	31.00	41.75		·	51.46*			1973	86213
ő	- ! 	0.12	£	L	66.4	3.000	0.123	1.050	1.570		30.90	42.98	************		58.81			1973	86213
5		0.12			66.0	3.000	0.125	1.070	1.480	:	30.00	42.26	42.3	9.4	54.12*	ı	ı	1973	86213
		0.12			0.99	3.000	0.125	1.070	1.600		30.00	42.26			58.14*			1973	86213
		0.12			0.99	3.000	0.125	1.000	1.470	ı	31.20	42.02			55.95*			1973	86213

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

TABLE 7.5.2.2 (CONTINUED)

							₽ 	ALUMINUM	NUM	2024	K _c								
	PROI	PRODUCT				SPECIMEN	MEN	CRACK	CK TH	GROSS	SS SS		Карр			К _с			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC OR	STR (Ket)	WIDTH (in.)	THICK (in.)	(in.)	FINAL (in.) 2n,	ONSET (Kei) G	MAX (Kei)	K (Kat√in)	K.	STAN	K _e (Ket√in)	K _c MEAN	STAN	DATE	REFER
							BUCKLIN	₹G OF CI	RACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRAI	NED							
į		90.0	í	i	62.0	6.000	090.0	2.000	2.420	:	25.60	48.76			55.60			1966	86734
181	Sheet	90.0	K.T.	Т-Г	62.0	6.000	090.0	2.000	2.360	-	28.20	53.71	51.2	3.6	60.14	67.9	3.2	1966	86734
		90.0			62.0	9.000	090.0	3.000	3.500		23.00	53.65			69.59			1966	86734
T81	Sheet	90.0	R.T.	T-T	62.0	9.000	090.0	3.000	3.260		23.20	54.12	65.2	2.3	57.20	61.2	129	1966	86734
		90.0			62.0	9.000	090'0	3.000	3.700	i	24.80	57.85			66.90			1966	86734
9	ā	0.06	E		62.0	15.000	0900	5.000	6.600	·	16.80	69.09			64.60			1966	86734
6	neet	90:0	K.T.	75	62.0	15.000	0.060	2.000	5.600	ı	16.80	60.59	50.6	0.0	64.60	54.6	0.0	1966	86734
ě	ē	90:0		į	62.0	18.000	090.0	0.00	6.640	!	15.60	51.46			80'22			1966	86734
181	Sheet	90.0	K.T.	3	62.0	18.000	0.060	0.009	0.90	1	15.40	50.80	51.1	0.6	54.14	54.6	0.7	1966	86734
į	100	90.0	£	į	62.0	21.000	090.0	7.000	8.200	ı	14.60	52.02			26'29			1966	86734
101	Sugar	90.0		1	62.0	21.000	090.0	7.000	8.000	1	13.80	49.17	9.09	2.0	53.82	62.9	2.9	1966	86734
	Ğ	90.0	Ę	i	62.0	24.000	090.0	8.000	8.800	1	13.00	49.52			62.78			1966	86734
101	138HC	90:0	11.1.	7	62.0	24.000	090.0	8.000	9.000	:	12.50	47.62	48.6	1.3	51.54	62.2	6.0	1966	86734
	41,	0.12			65.8	3.000	0.125	1.000	1.510	19.50	31.50	42.42			67.84			1973	86213
		0.12			62.8	3.000	0.125	1.090	1.530	14.50	29.00	41.37			63.89*			1973	86213
ğ	10	0.12	£	£	829	3.000	0.125	1.000	1.400	19.90	31.60	42.56			54.36*			1973	86213
1001	8	0.12	<u>.</u>	3	65.8	3.000	0.125	1.000	1.330	18.70	32.30	43.50	42.0	0.1	63.30*	i	!	1973	86213
		0.12			65.8	3.000	0.125	1.080	1.700	15.50	29.40	41.67			60.56			1973	86213
		0.12			65.8	3.000	0.125	1.100	1.520	15.30	28.60	41.05			52.83*			1973	86213

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

		REFER		86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213
		DATE R		1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973
,	·	STAN DEV					_	Cont'd						:						3.8		<u> </u>
	Кç	K _o MEAN						Cont'd						1			1			48.4	- 1	
		K _e (Kst√in)		59.14	65.08	49.76*	50.08	56.38*	64.64	£7.91*	70.11*	70.55*	71.60*	69.36	72.13	78.33*	72.53*	46.84	52.41	49.90	48.41	62.22
		STAN						Cont'd						0.8			6.0			2.3		
	Kapp	K						Cont'd						48.6			61.9			38.6		
		K. (Kei√in)	INED	43.64	41.62	41.35	40.29	41.45	42.90	46.06*	47.36*	46.47*	49.53	47.97	48.41	52.48	51.23	38.42	40.22	39.60	38.42	40.94
Kc	SS	MAX (Kei)	RESTRA	32.40	30.90	30.70	28.60	29.80	29.70	34.20	33.20	33.20	31.90	30.90	30.00	33.80	31.30	10.70	11.20	11.00	10.70	11.40
2024	GROSS	ONSET (Kal) o.	GES NOT	19.50	20.40	17.40	14.60	17.50	16.90		i	:		i	ï	:		ì	1	ı	1	
ALUMINUM	CRACK	M. ON	9.920	9.570	9.540	9.680																
LUM	CR	INIT (in.) 2a,	ING OF	1.000	1.000	1.000	1.070	1.050	1.110	1.000	1.090	1.060	1.330	1.330	1.410	1.330	1.440	7.000	7.000	7.000	7.000	7.000
<i>t</i>	IMEN	THICK (in.) B	BUCKL	0.125	0.125	0.125	0.125	0.125	0.127	0.132	0.132	0.132	0.242	0.242	0.243	0.256	0.256	1.000	1.000	1.000	1.000	1.000
	SPECIMEN	WIDTH (In.) W		3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	4.000	4.000	4.000	4.000	4.000	20.000	20.000	20.000	20.000	20.000
	u lain	STR (Kal)		65.8	66.1	66.1	66.1	66.1	65.8	62.2	62.2	62.2	65.2	65.2	65.2	66.4	66.4	65.8	65.8	65.8	65.8	65.8
		SPEC						L.T Cont'd						7			2			L1		
	LS all	TEMP (°F)						R.T. Cont'd						R.T.			K.T.			R.T.		
	UCT	THICK (in.)		0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.25	0.25	0.25	0.25	0.25	1.00	1.00	1.00	1.00	1.00
	PRODUCT	FORM		_	I			Sheet						Plate			Flate			Plate		
		CONDITION HEAT TREAT						T851 Cont'd						1861			1081			1361		

• NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

TABLE 7.5.2.2 (CONTINUED)

							¥	ALUMINUM	NOM	2024	K _c								
	PRODUCT	UCT	to sate	 		SPECIMEN	MEN	CRACK	СК	GROSS	SS		Карр			Kc			
CONDITION HEAT TREAT	FORM	THICK (In.)	TEMP (F)	SPEC	STR (Ksi)	WIDTH 7	THICK (in.) B	INIT (in.) 2a,	FINAL (in.) 2a,	ONSET (Kel)	MAX (Kei)	K (Kelvin)	K. MEAN	STAN	K _e (Ket√in)	K _e MEAN	STAN DEV	DATE	Refer
░							BUCKLIP	AG OF C	RACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRA	INED							
	1	1.00			65.8	20.000	1.000	7.000	9.300	1	10.90	39.14			48.27			1973	86213
		1.00		1	66.8	20.000	1.000	7.000	9.300	!	11.50	41.30			50.93			1973	86213
		1.00			65.8	20.000	1.000	7.000	10.050	;	11.50	41.30			54.44			1973	86213
	Plate Cont'd	1.00	R.T. Cont'd	Gata	66.1	20.000	1.000	7.000	9.250	1	10.00	35.91	Cont'd	Cont'd	44.09	Cont's	Confd	1973	86213
	I	1.00			66.1	20.000	1.000	7.000	9.170	į	10.70	38.42			46.84			1973	86213
		1.00		. !	66.1	20.000	1.000	7.000	9.710		9.80	35.19			45.01			1973	86213
		1.00			66.1	20.000	1.000	7.000	8.900	:	9.70	34.83			41.45			1973	86213
		0.12			64.4	3.000	0.120	1.130	1.450	13.80	25.00	36.56			44.30			1973	86213
		0.12			64.4	3.000	0.124	1.000	1.420	19.40	25.90	34.88			45.09			1973	86213
		0.12			64.4	3.000	0.125	1.000	1.300	14.90	28.10	37.84			45.55			1973	86213
		0.12		1	64.4	3.000	0.125	1.100	1.490	12.90	26.00	37.32			47.18*	,		1973	86213
		0.12		1	65.4	3.000	0.125	1.000	1.320	19.40	29.10	39.19			47.74			1973	86213
	100	0.12	6		65.4	3.000	0.125	1.100	1.560	13.90	25.40	36.46			48.06*			1973	86213
	1810	0.12	i	2	65.4	3.000	0.125	1.000	1.410	17.20	28.20	37.98	37.0	1.3	48.80	44.8	1.7	1973	86213
-		0.12		I	65.4	3.000	0.125	1.070	1.380	14.80	26.90	37.89			45.73			1973	86213
		0.12			65.4	3.000	0.125	1.120	1.490	15.00	24.30	35.32			44.09			1973	86213
	-	0.12			65.4	3.000	0.125	1.050	1.300	15.80	26.90	37.41			43.60			1973	86213
		0.12			65.4	3.000	0.125	1.000	1.300	18.00	28.20	37.98			46.71			1973	86213
		0.12			65.4	3.000	0.126	1.000	1.250	16.70	26.40	35.55			41.53			1973	86213

* NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

		REFER		86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213
		DATE		1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973
		STAN DEV			اــــا					2.6		·		1.4				1:1			6.1	
	К _С	K _o 1			:					31.3				48.9				45.8			33.7	
		K _c (Keivin)		67.56*	€0.01	67.44*	27.89	32.73	30.11	33.95	29.28	33.65	50.40	47.82	48.40	37.36	55.45	55.41	35.11	31.16	32.57	31.32
				67			2,	8	ĕ		ä	, m	32			3	20		8	3		
		STAN DEV								1.4				0.4				7.1			1.3	
	Карр	MEAN			42.3					26.7	,			38.6				37.6			27.8	
		K (Kelvlin)	INED	41.57	43.23	41.99	24.71	26.09	25.93	27.71	28.58	27.14	38.81	38.14	38.97	31.81	43.47	43.98	31.00	25.50	26.57	25.86
Кc	38 38	MAX (Kai)	RESTRA	29.70	32.10	30.00	17.00	17.30	17.30	18.60	18.50	18.00	25.00	23.30	25.10	19.90	28.00	27.00	19.30	7.10	7.40	7.20
2024	GROSS	ONSET (Kei) G.	BUCKLING OF CRACK EDGES NOT RESTRAINED	:	:	:	:	:	ŀ	1	i	ı	:	:	:	:	;	1	ı	-	1	ı
ALUMINUM	CRACK	FINAL (in.) 2a,	RACK EL	1.600	1.540	1.580	1.320	1.560	1.420	1.500	1.260	1.540	1.900	1.940	1.800	1.740	1.860	1.940	1.670	9.200	9.230	9.100
TOM	CR	INIT (in.) 2a,	NG OF	1.060	1.000	1.060	1.120	3.000 0.249 1.180 1.55 3.000 0.250 1.170 1.45 3.000 0.251 1.160 1.56 3.000 0.252 1.220 1.26 4.000 0.243 1.390 1.56 4.000 0.243 1.40 1.94	1.440	1.330	1.390	1.330	1.430	1.400	7.000	7.000	7.000					
	IMEN	THICK (fb.) B	BUCKL	0.132	0.132	0.132	0.245 0.249 0.250 0.251 0.252 0.252	0.243	0.243	0.255	0.256	0.256	0.256	1.000	1.000	1.000						
	SPECIMEN	WIDTH (in.) W		3.000	3.000		4.000	4.000	4.000	4.000	4.000	4.000	4.000	20.000	20.000	20.000						
	4	STR (Ket)		64.1	64.1	64.1	56.6	59.2	56.6	56.6	59.2	59.2	66.2	66.2	66.2	68.0	65.8	65.8	68.0	64.4	64.4	64.4
		SPEC			7:L				į	3				T-L				2			T.I.	
	Ę.	TEMP (°F)			R.T.				É	K.T.				R.T.			ę	R. I.			R.T.	
	ucr	THICK (fa.)		0.12	0.12	0.12	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1.00	1.00	1.00
	PRODUCT	FORM			Sheet					Flate			1	Plate			1	Flate			Plate	
		CONDITION HEAT TREAT			T851				į	1891				1851			į				1861	

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

		REFER		86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213
				_		<u> </u>		-	-	_							_	-	_	\vdash		\vdash
		DATE		1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973
		STAN						, to			. ==							i				
	Kc	K _c MEAN						Cont'd										į				
		K _o (Kelvin)		32.34	34.00	34.01	33.27	33.73	35.49	37.27	32.53	36.25	51.63	49.07	48.63*	₽91'99	€0.31	50.76*	44.44*	45.11•	45.56	47.72*
		STAN DEV						Cont'd										1.4				
	Kapp	K						Conf'd										38.4				
		K. (Kei√in)	INED	26.93	28.37	28.73	28.01	28.37	28.73	30.17	27.65	28.37	37.53	39.08	38.06	40.38	38.81	38.89	40.39	36.40	37.61	36.82
K _c	SS	MAX (Kal)	RESTRAI	7.50	7.90	8.00	7.80	7.90	8.00	8.40	7.70	7.90	35.90	37.30	36.40	38.70	36.90	36.90	38.40	34.60	35.90	35.00
2024	GROSS	ONSET (Kel) G	BUCKLING OF CRACK EDGES NOT RESTRAINED	ı	ı	i		i	:	ı	i	:	i	ı	i	:	·	;	i	ı	ï	ï
ALUMINUM	CRACK LENGTH	FINAL (in.) 2a,	CRACK EI	9.000	8.980	8.840	8.880	8.890	9.320	9.320	8.770	9.700	0.960	0.860	0.900	0.970	0.900	0.910	0.720	0.850	0.820	0.900
LUM	CR	INIT (la.)	ING OF	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000	0.616	0.619	0.617	0.614	0.622	0.624	0.623	0.623	0.619	0.622
ď	IMEN	THICK (In.) B	BUCKL	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.062	0.062	0.062	0.062	0.062	0.062	0.062	0.064	0.064	0.064
	SPECIMEN	WIDTH (in.) W		20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
	VIRT	STR (Kel)	Ost Contd	72.4	72.4	72.4																
		SPEC																				
	TEST	TEMP (°F)																				
	UCT	THICK (In.)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	90.0	90.0	90.0	90'0	90.0	90:00	90.0	90.0	90.0	90'0
	PRODUCT	FORM		1	1			Plate Cont'd	1	I	1			1.	1	1	15015	i i	1			
	I	CONDITION HEAT TREAT						T851 Cont'd									J.	8				

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

TABLE 7.5.2.2 (CONCLUDED)

							A	ALUMINUM	NOM	2024	Kc								
	PROI	PRODUCT	1.00.01		u lana	SPECIMEN	MEN	CRACK	CK TH	GROSS STRESS	SS		Kapp			Кc			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC		WIDTH (fb.)	THICK (In.)	INIT F (in.) 2a,	FINAL (in.) 2a,	ONSET (Kei) 0.	MAX (Kel)	K (Kei√in)	K,	STAN	K _e (Ksi√in)	K _o MEAN	STAN	DATE	REFER
							BUCKLIN	IG OF CE	VACK RD	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRA	INED							
		90.0		I	72.9	15.810	0.063	6.010	6.930	1	16.10	54.40			60.45			1973	86213
		90.0			72.9	15.800	0.064	3.000	3.400	1	22.20	49.29			52.82		<u></u>	1973	86213
186	Sheet	90.0	R.T.	7	72.9	15.810	0.064	3.990	4.660	;	18.20	47.44	47.6	4.6	52.06	53.0	4.7	1973	86213
		90.0			72.9	15.820	0.064	2.990	6.800	ı	12.80	43.14			47.35			1973	86213
		90.0			72.9	15.820	0.064	1.010	1.420	ı	34.70	43.82			52.08			1973	86213
		90.0			71.6	2.000	0.062	0.616	0.800	:	34.70	36.28			43.25•			1973	86213
		90.06			71.6	2.000	0.062	0.618	0.875	ı	33.20	34.78			44.23*			1973	86213
		90:06		1	71.6	2.000	0.062	0.617	0.815	ı	33.90	35.44			42.79			1973	86213
		90'0			71.6	2.000	0.062	0.615	0.915	ı	32.40	33.80			44.73*			1973	86213
0	ē	90.0	E		72.6	2.000	0.063	0.620	0.910	;	32.60	34.22			44.85*			1973	86213
981	Sheet	90.0		<u>.</u>	72.6	2.000	0.063	0.623	0.820	i	32.90	34.61	34.4	6.0	41.75	42.5	9.0	1973	86213
		90.0			72.6	2.000	0.063	0.620	0.860	ı	32.70	34.33			43.02			1973	86213
		90.0			70.8	2.000	0.064	0.623	0.890	ı	31.70	33.34			42.84*	·····		1973	86213
		90.0		1	70.8	2.000	0.064	0.624	0.870	:	32.20	33.94			42.75*	,		1973	86213
		90:0			70.8	2.000	0.064	0.622	0.880	i	31.60	33.24			42.33			1973	86213
		90:0			71.2	15.810	0.063	3.010	3.430	i	19.70	43.82			47.10			1973	86213
		90.0			71.2	15.820	0.063	3.020	3.360	1	21.50	47.91			50.81			1973	86213
T86	Sheet	90.0	R.T.	7:L	71.2	15.810	0.064	6.020	6.630	ı	11.80	39.92	42.5	3.4	42.82	46.9	3.2	1973	86213
		90.0			71.2	15.820	0.064	4.000	4.620	i	15.70	40.98			44.67			1973	86213
		0.06			71.2	15.820	0.064	1.000	1.200	i	31.90	40.08			43.95			1973	86213

• NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

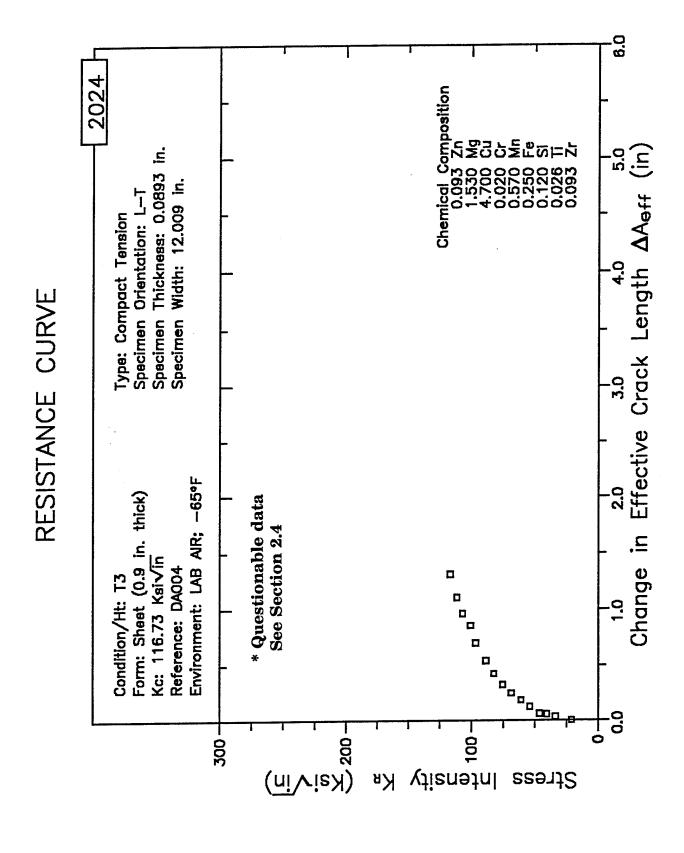


Figure 7.5.2.3.1



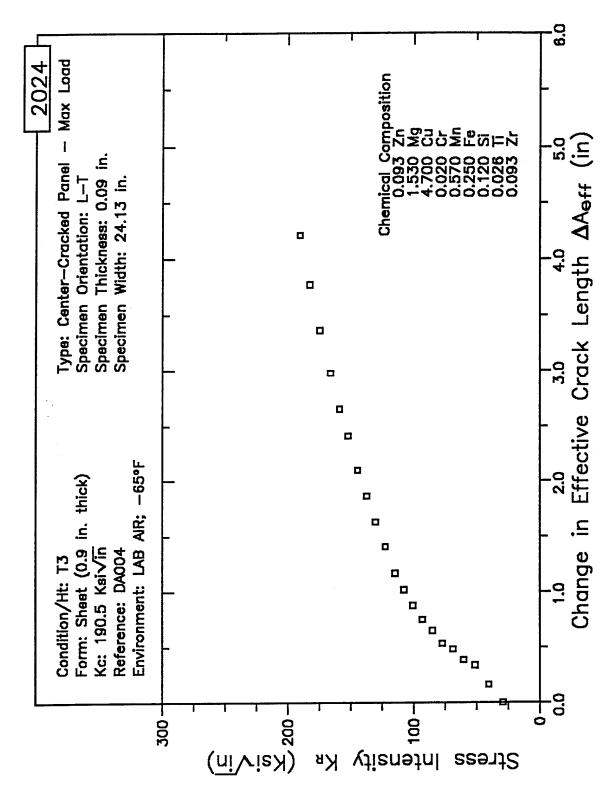
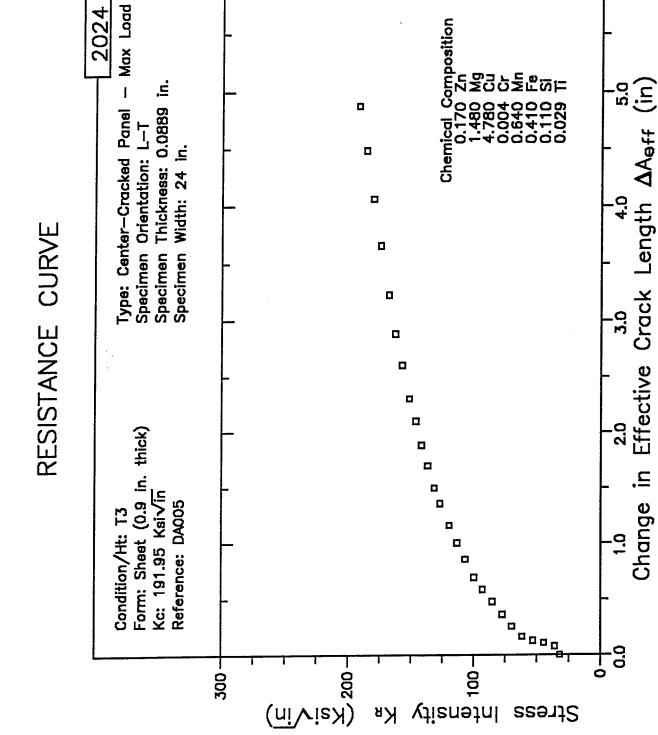


Figure 7.5.2.3.2



8.0

Figure 7.5.2.3.3

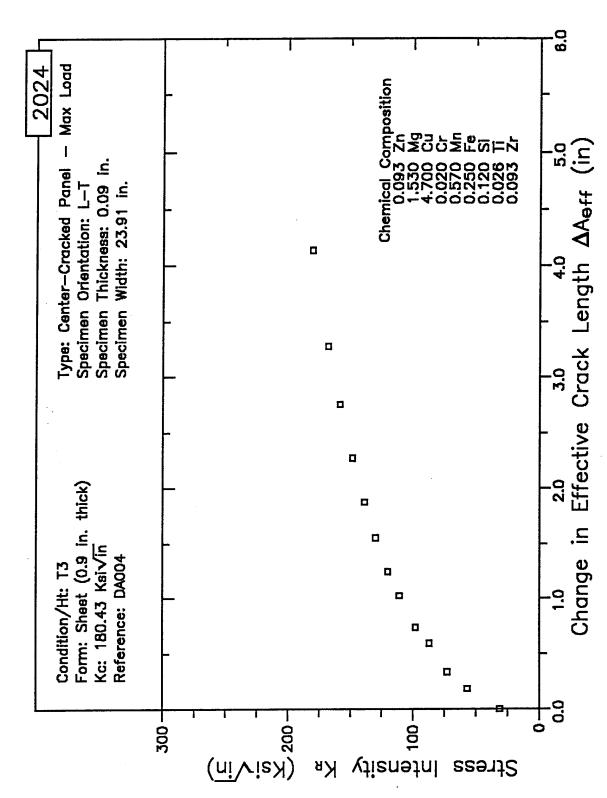


Figure 7.5.2.3.4

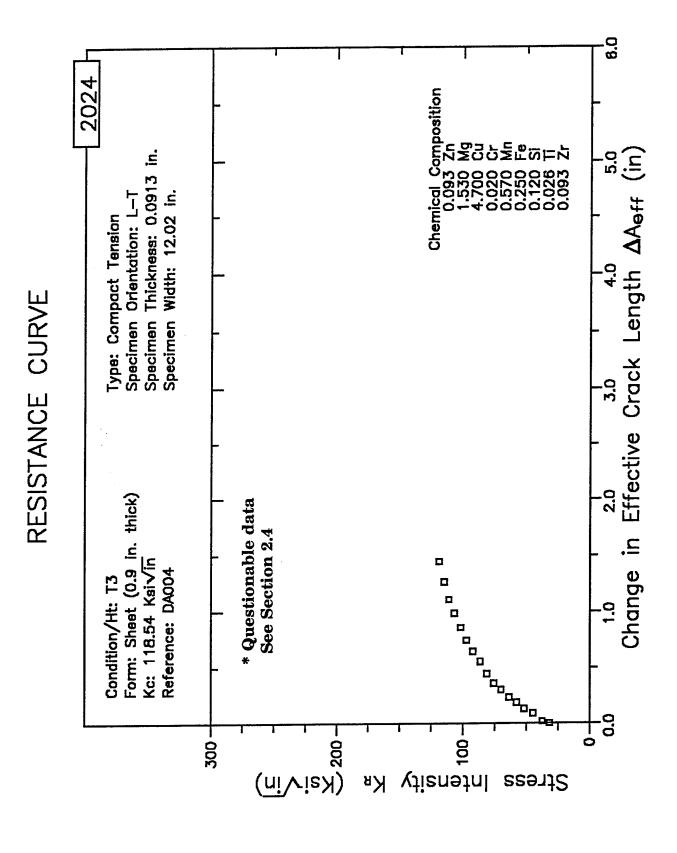


Figure 7.5.2.3.5



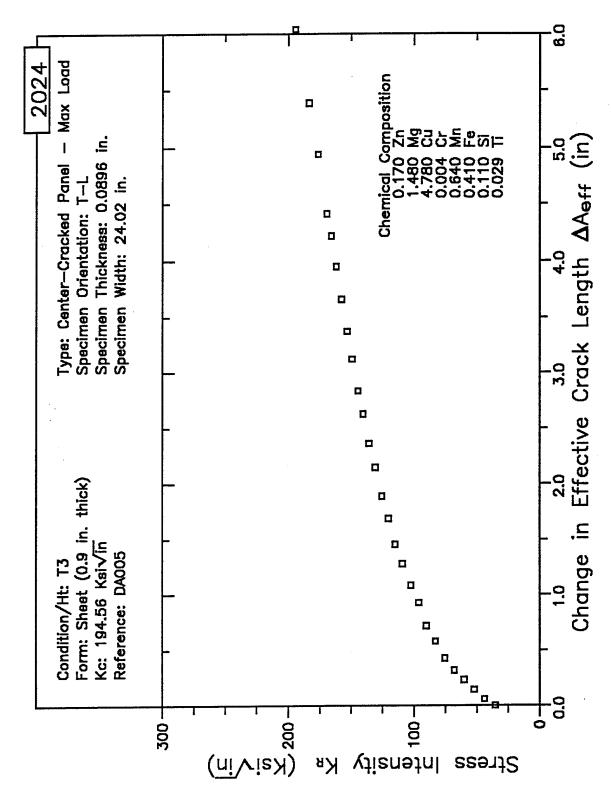


Figure 7.5.2.3.6



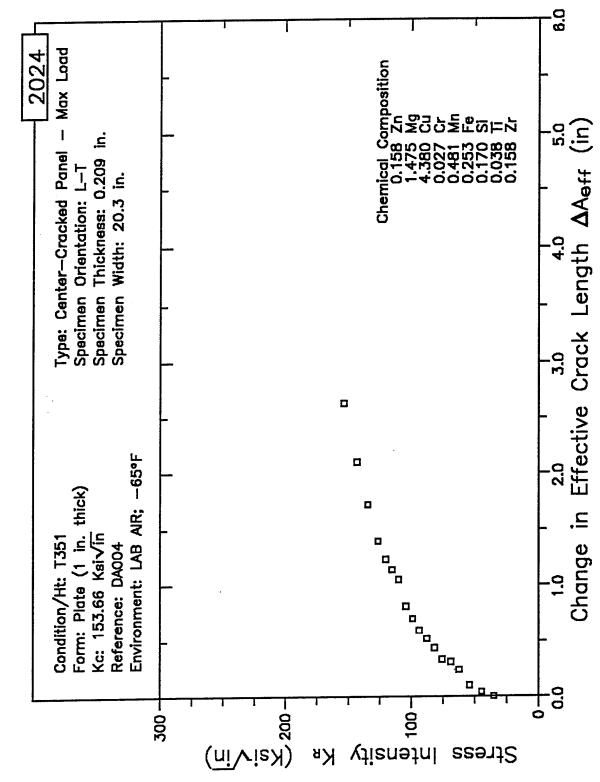


Figure 7.5.2.3.7

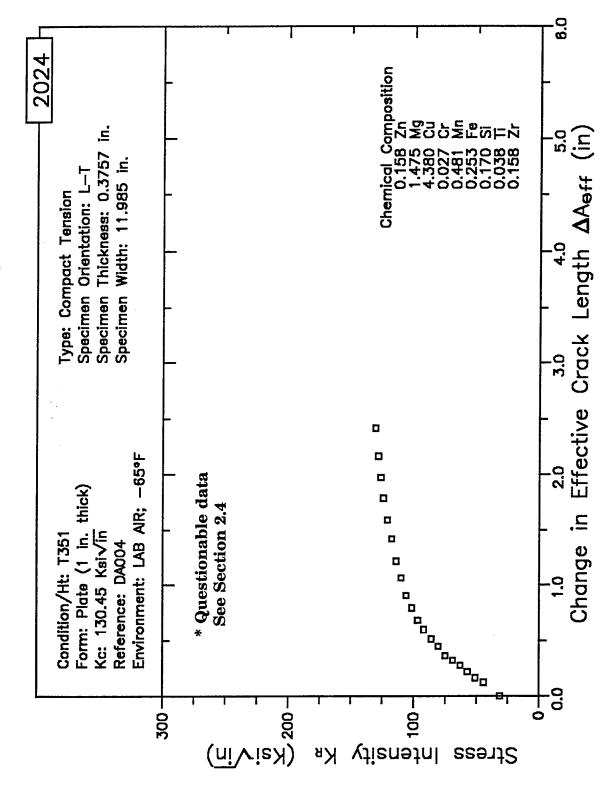


Figure 7.5.2.3.8

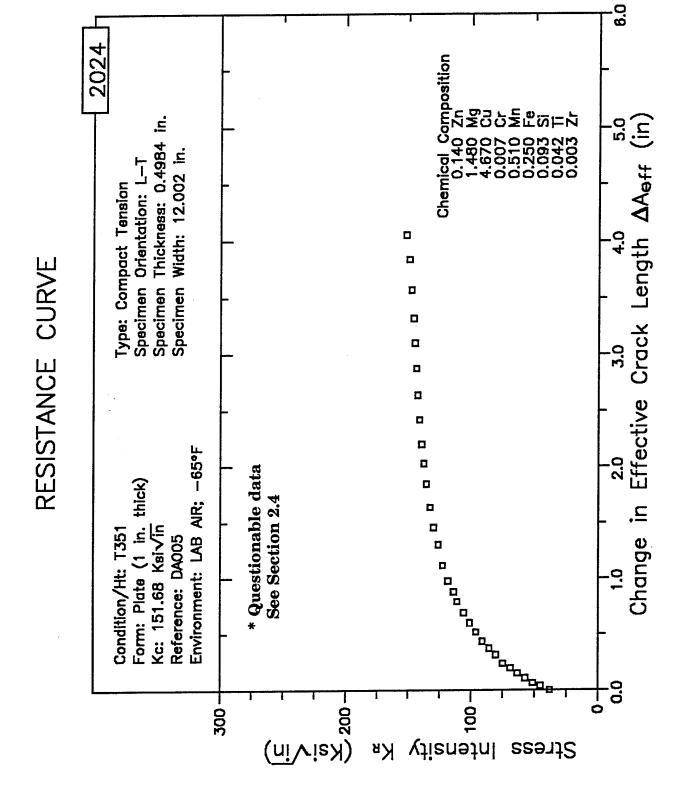


Figure 7.5.2.3.9



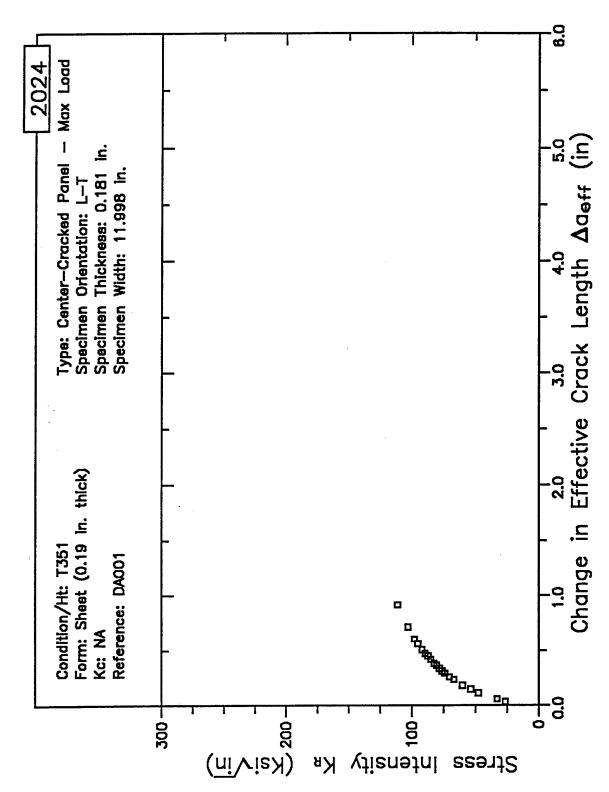


Figure 7.5.2.3.10

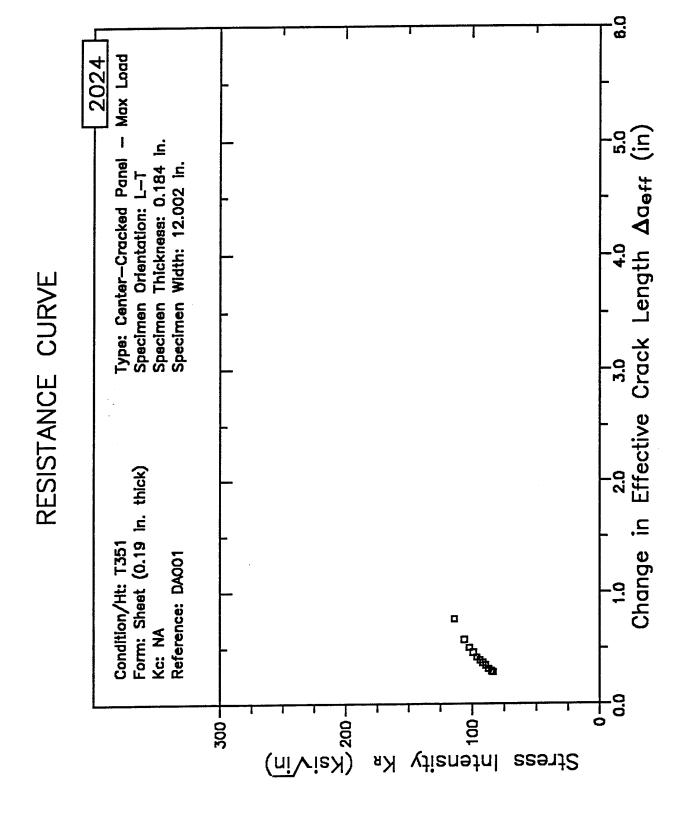


Figure 7.5.2.3.11



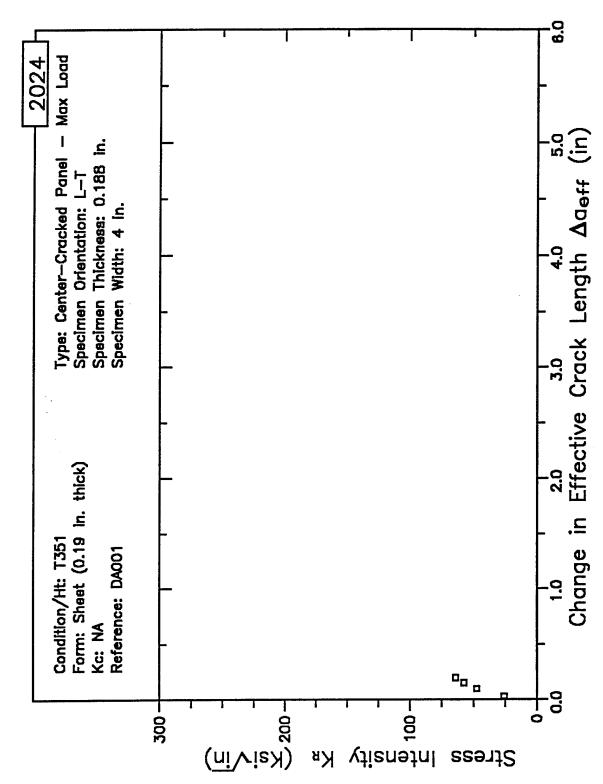


Figure 7.5.2.3.12

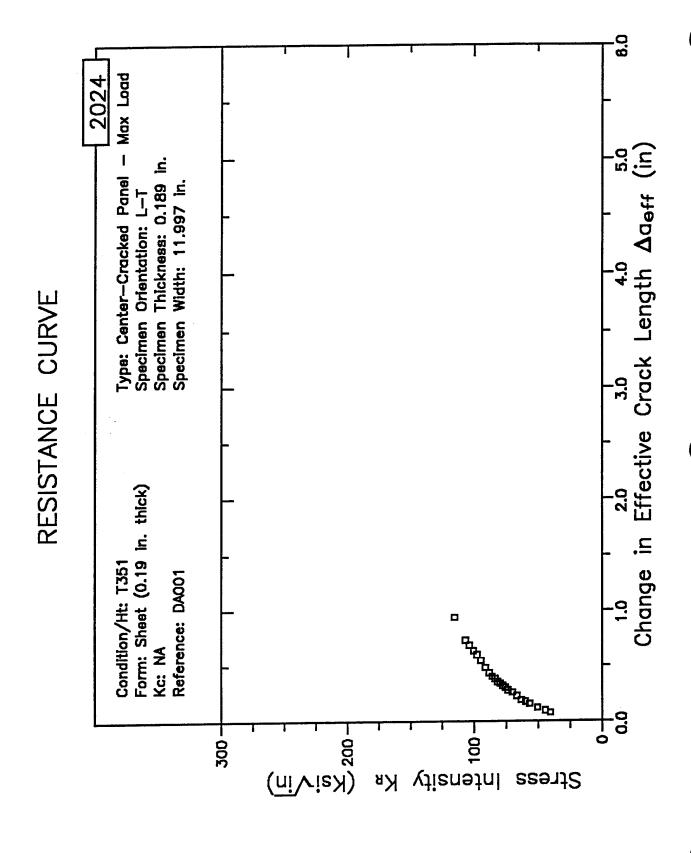


Figure 7.5.2.3.13

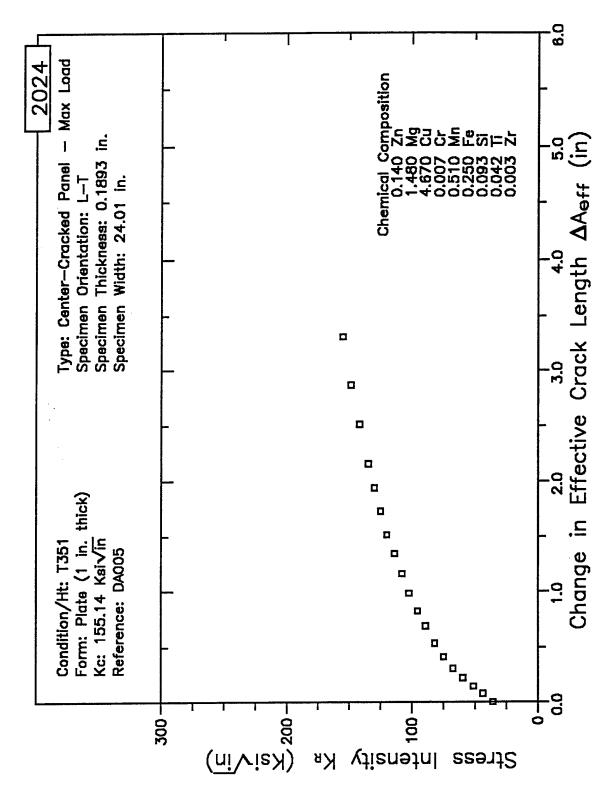


Figure 7.5.2.3.14

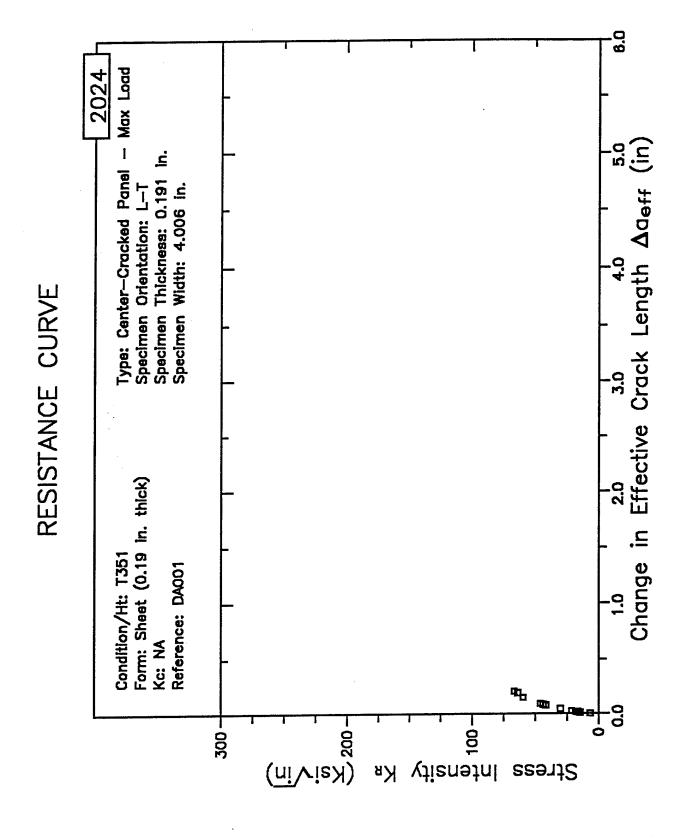


Figure 7.5.2.3.15



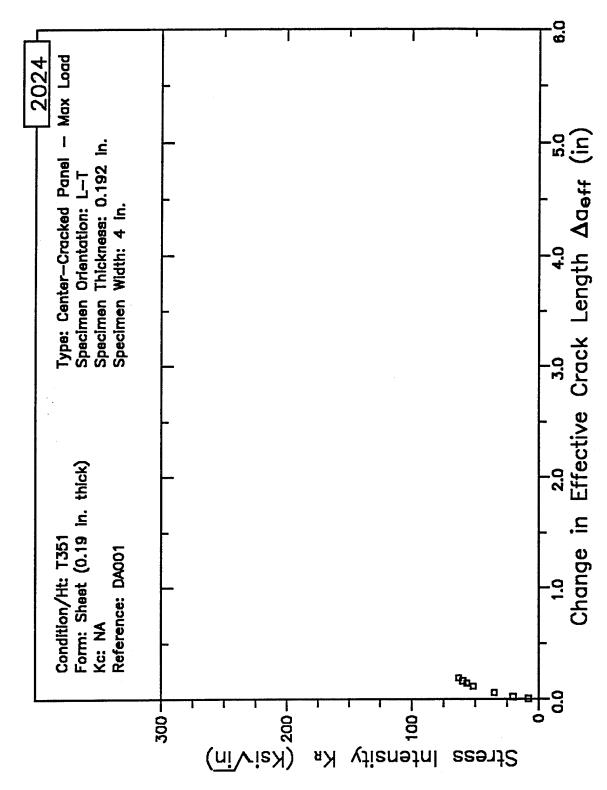


Figure 7.5.2.3.16

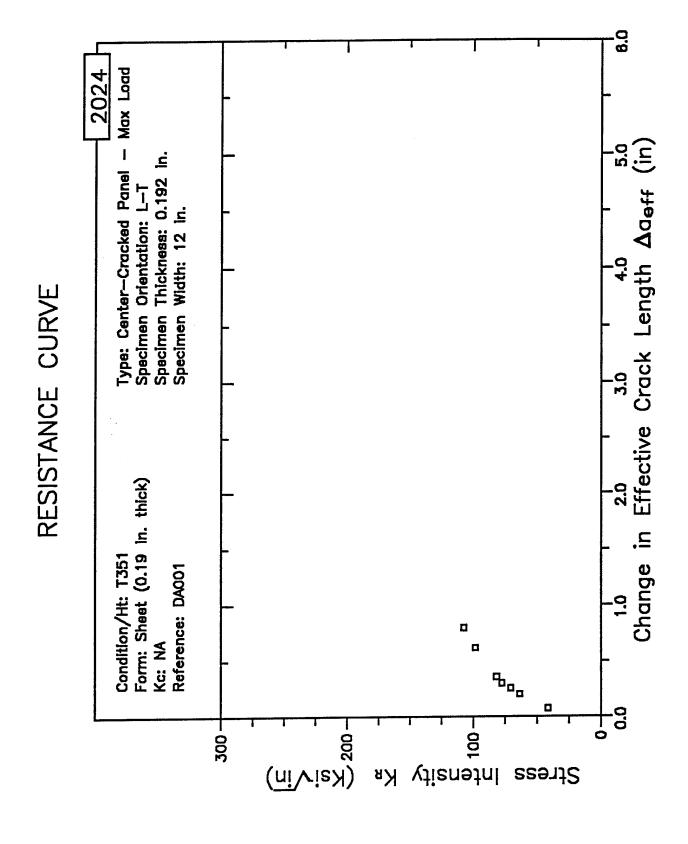


Figure 7.5.2.3.17

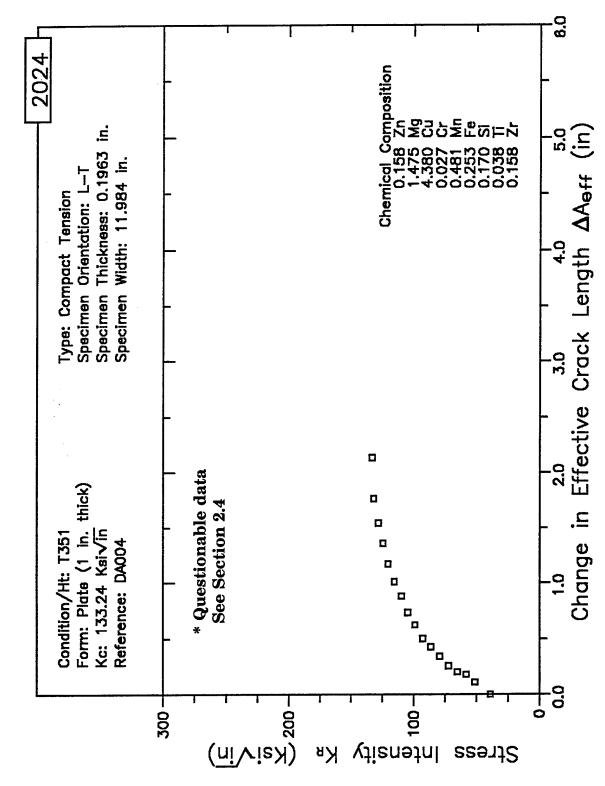


Figure 7.5.2.3.18

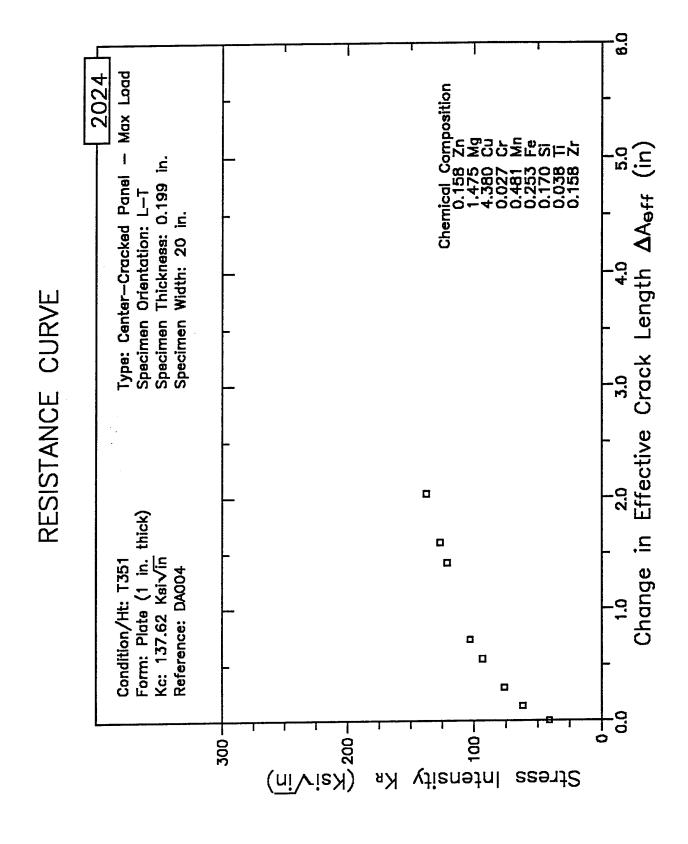


Figure 7.5.2.3.19

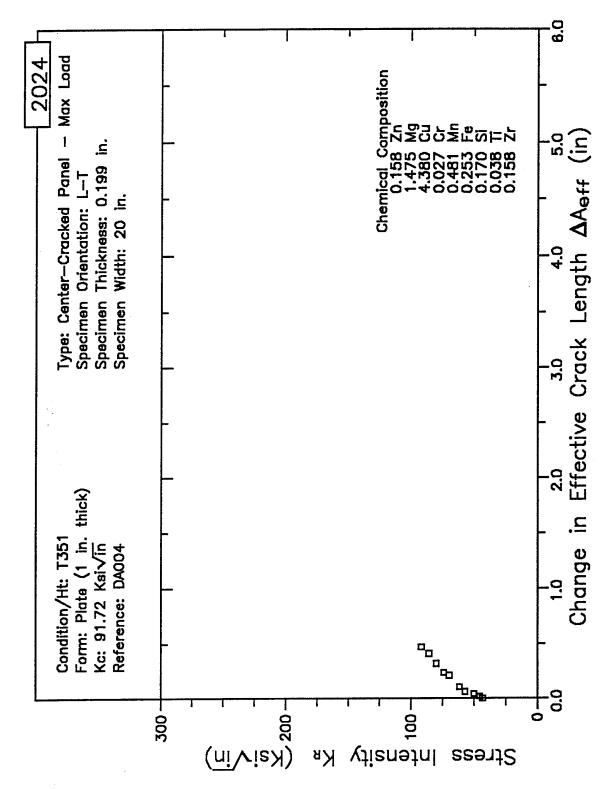


Figure 7.5.2.3.20

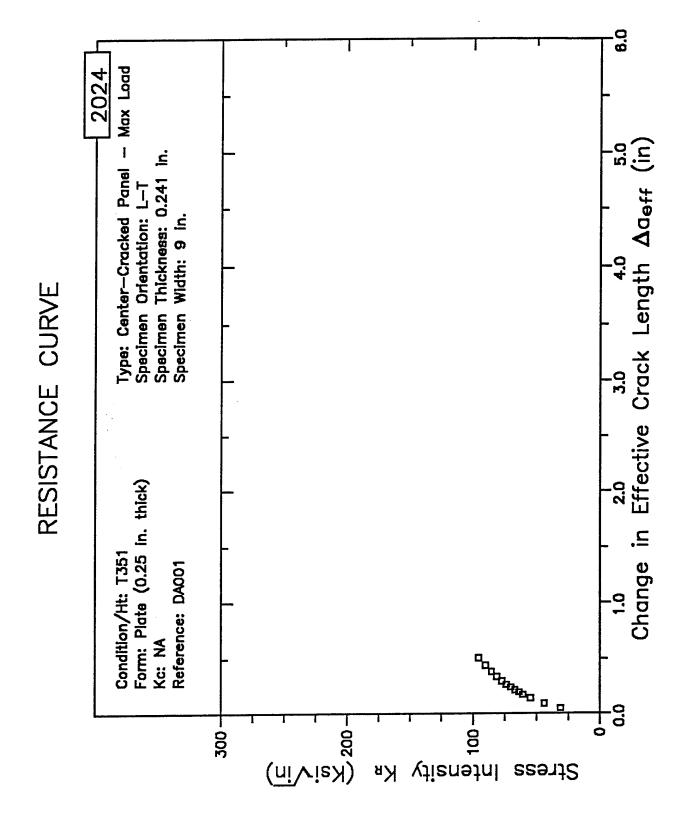


Figure 7.5.2.3.21

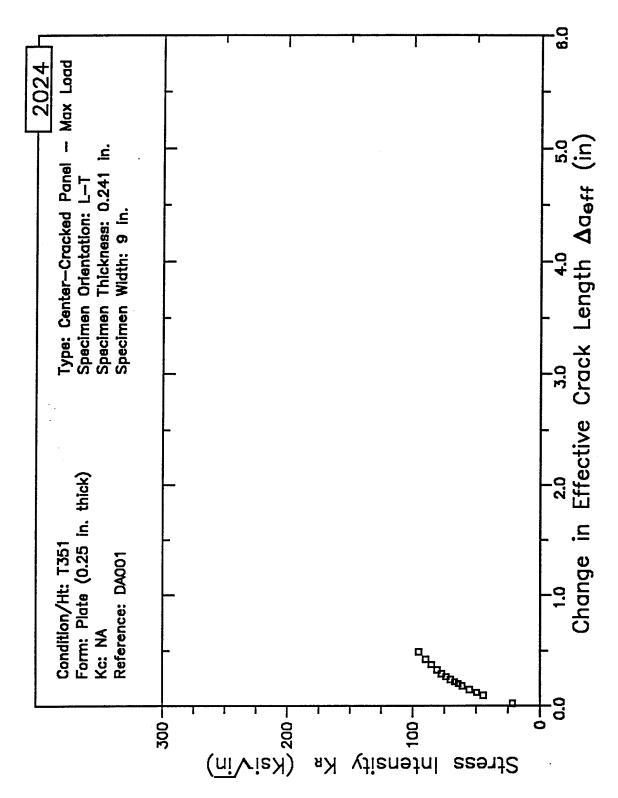


Figure 7.5.2.3.22

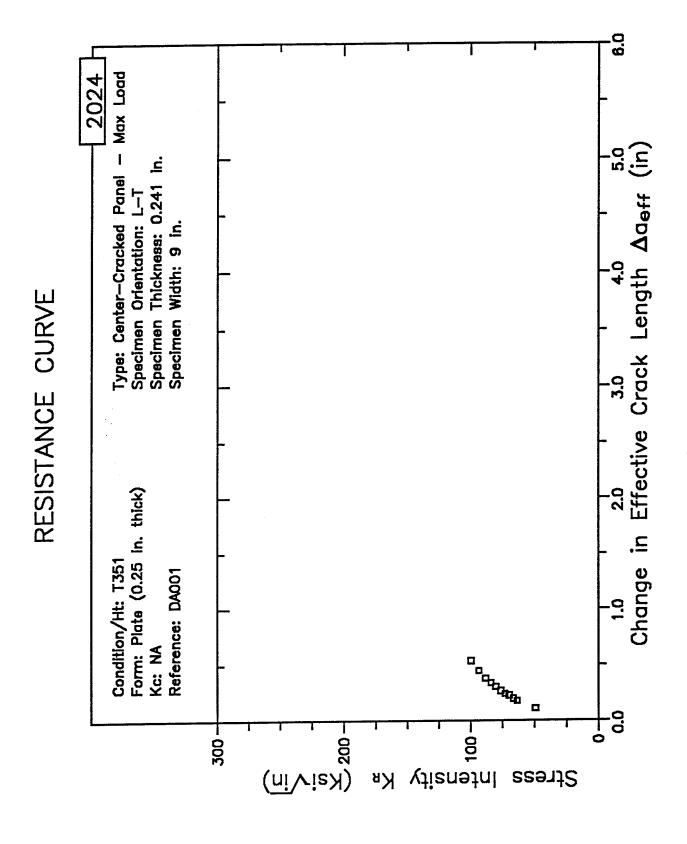


Figure 7.5.2.3.23

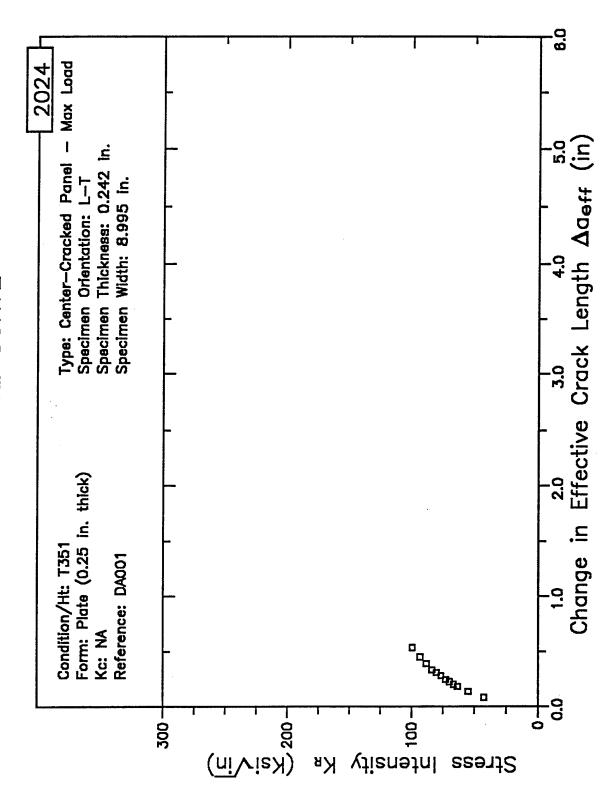


Figure 7.5.2.3.24

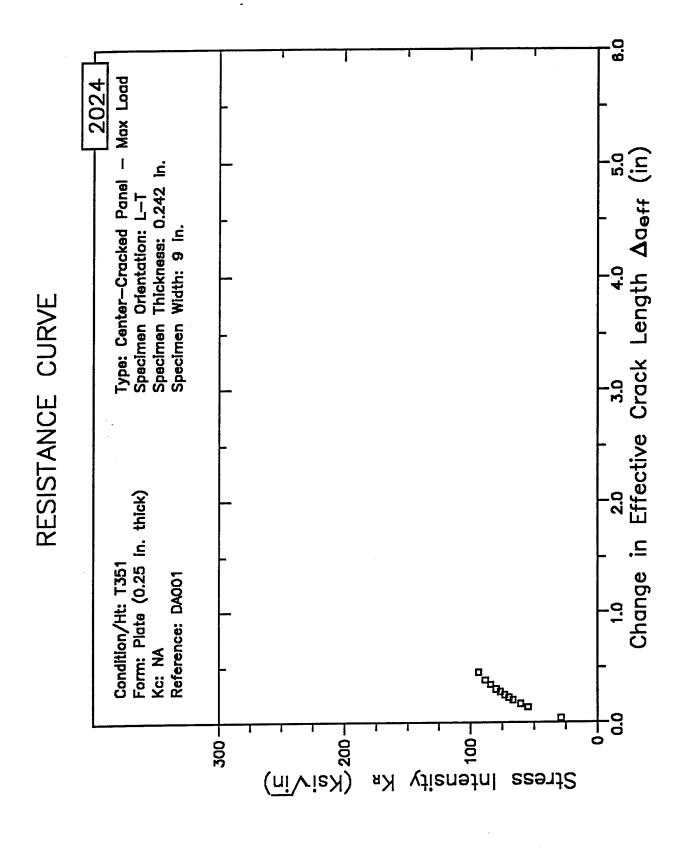


Figure 7.5.2.3.25



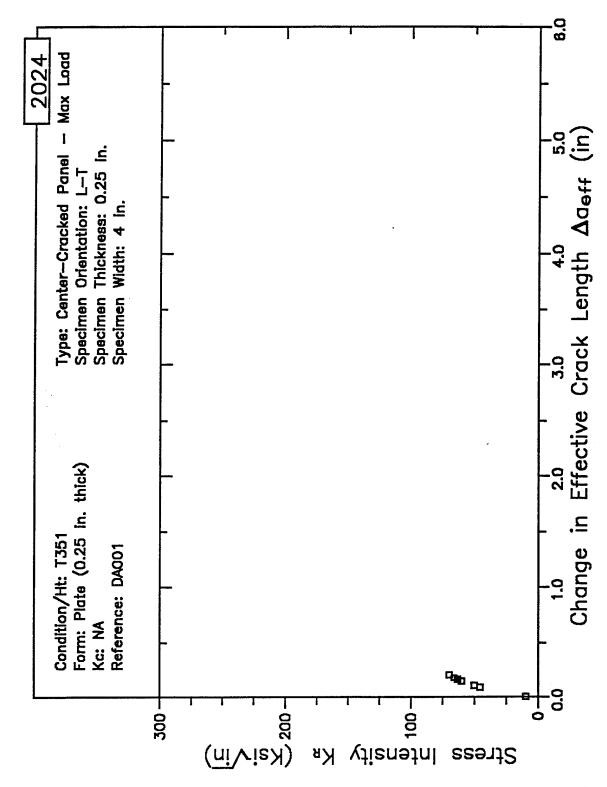


Figure 7.5.2.3.26

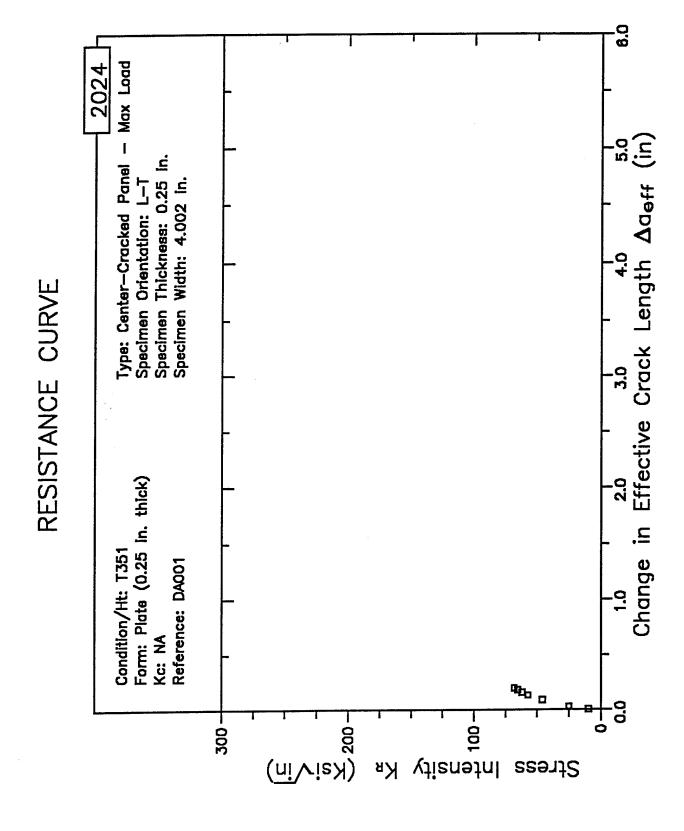


Figure 7.5.2.3.27

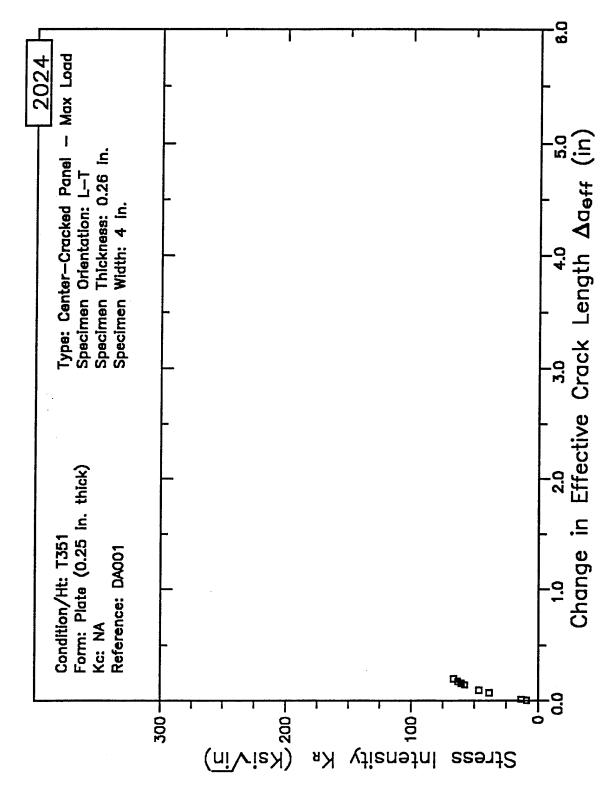


Figure 7.5.2.3.28

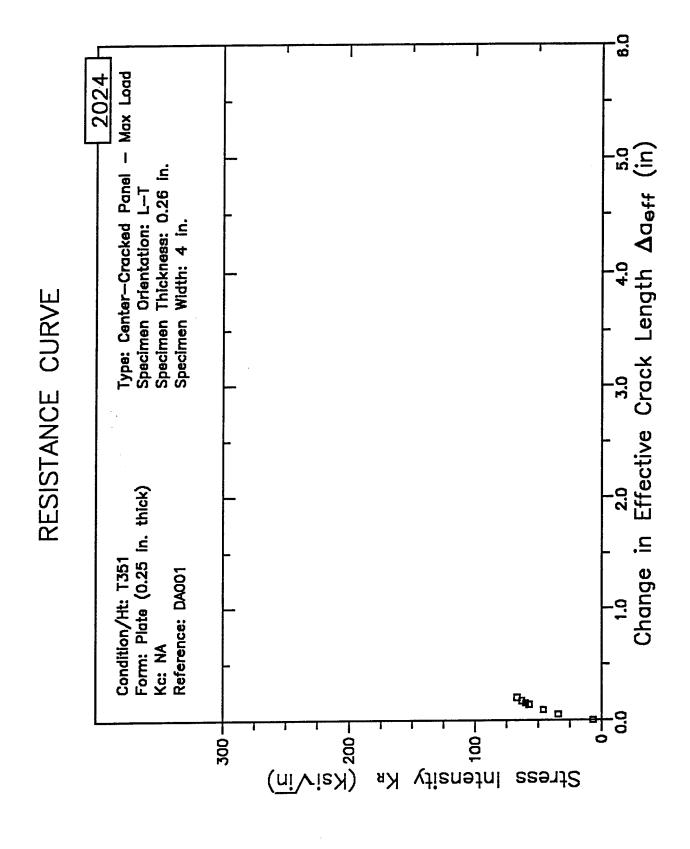


Figure 7.5.2.3.29

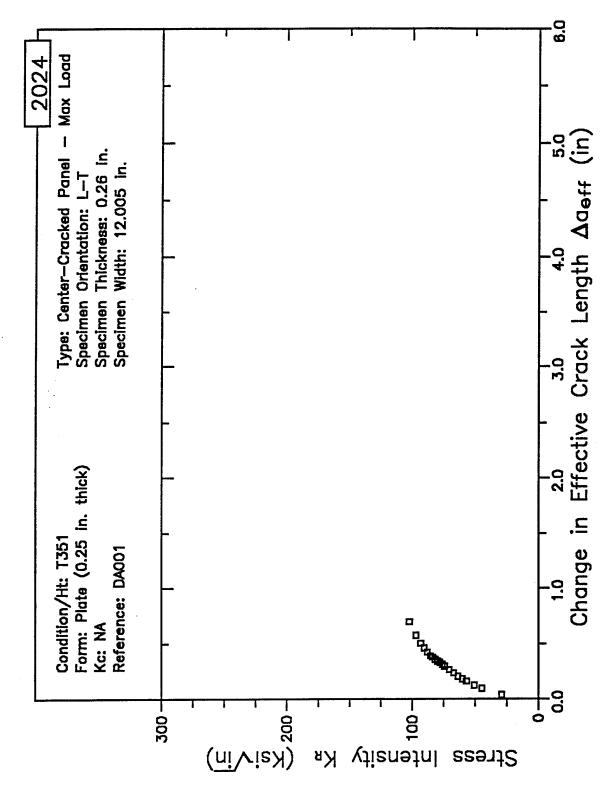


Figure 7.5.2.3.30

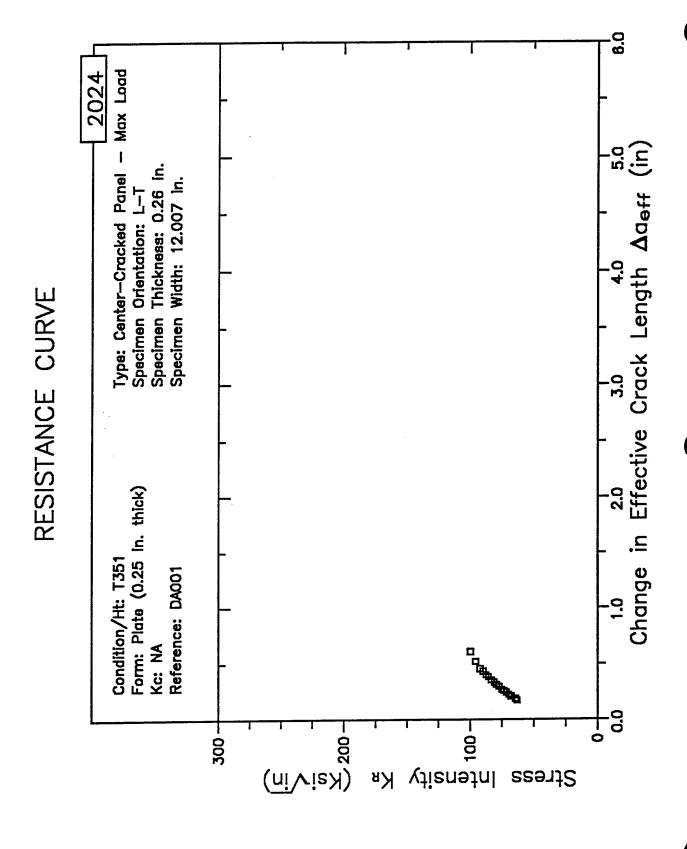


Figure 7.5.2.3.31

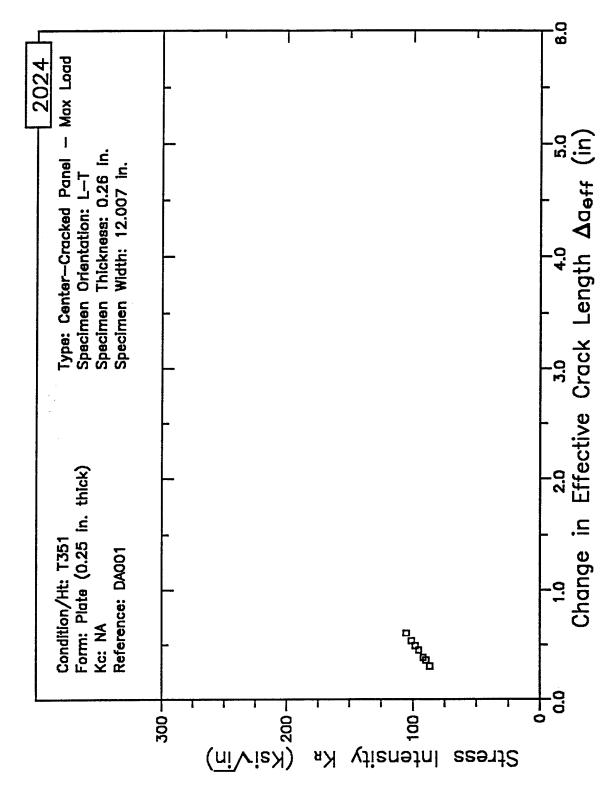


Figure 7.5.2.3.32

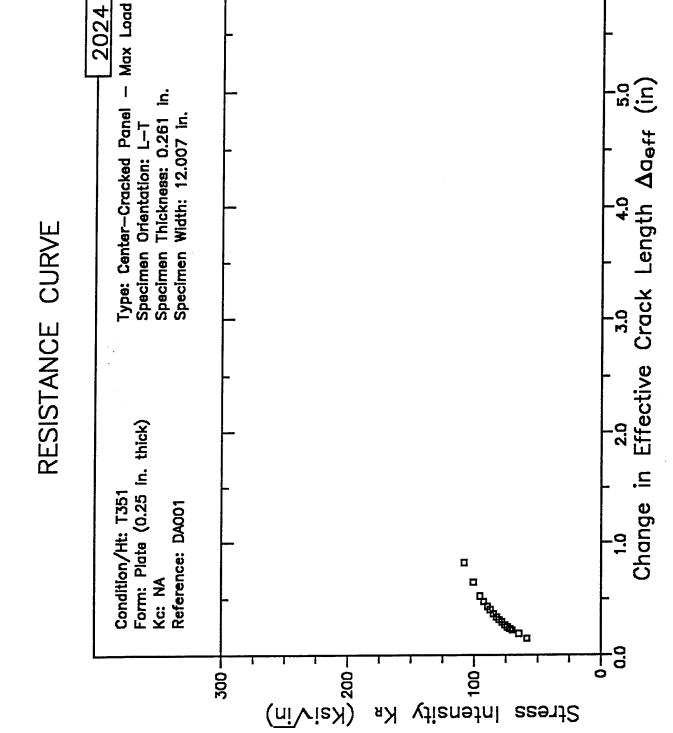


Figure 7.5.2.3.33

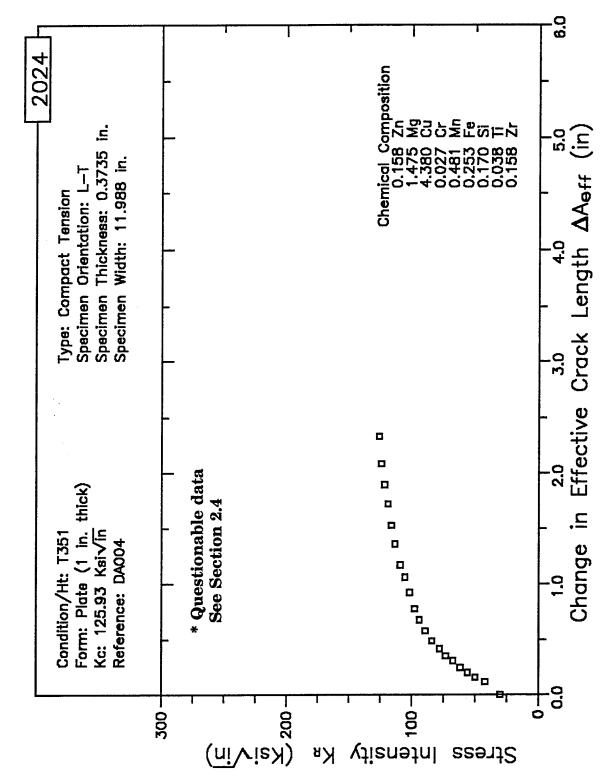


Figure 7.5.2.3.34

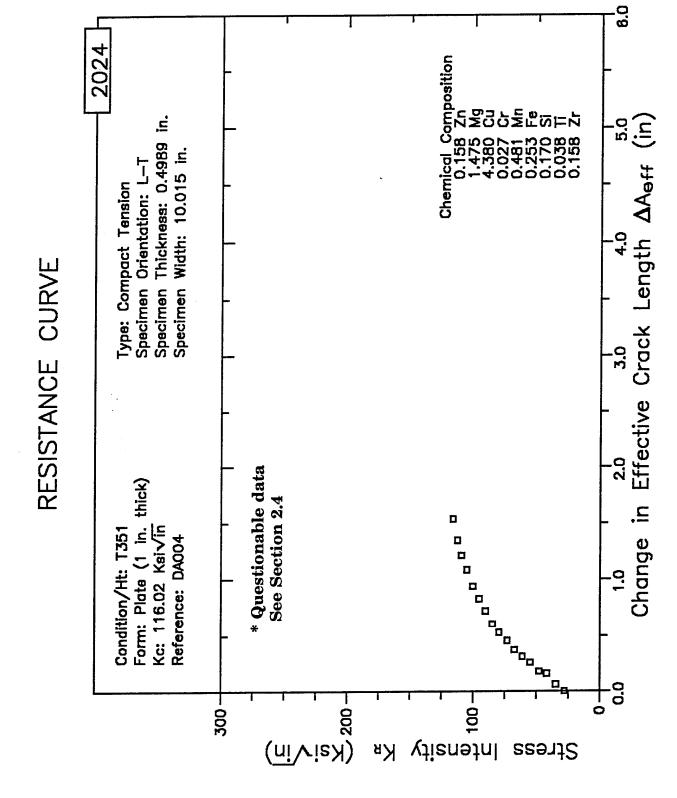


Figure 7.5.2.3.35

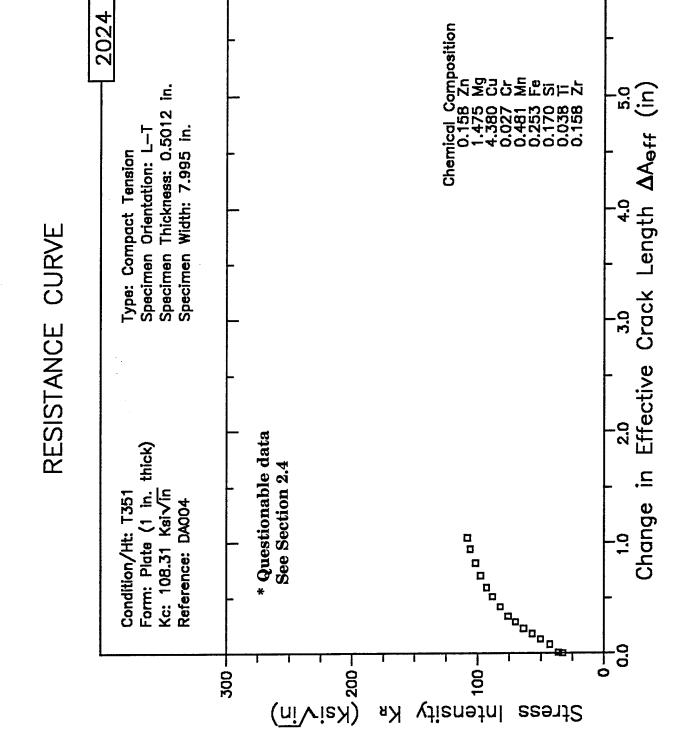


Figure 7.5.2.3.36

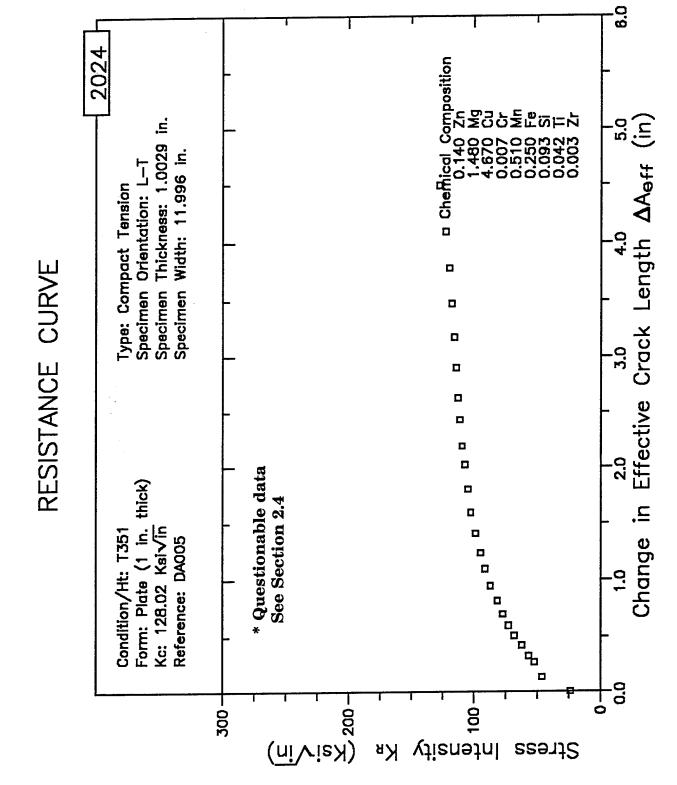
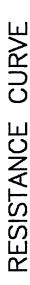


Figure 7.5.2.3.37



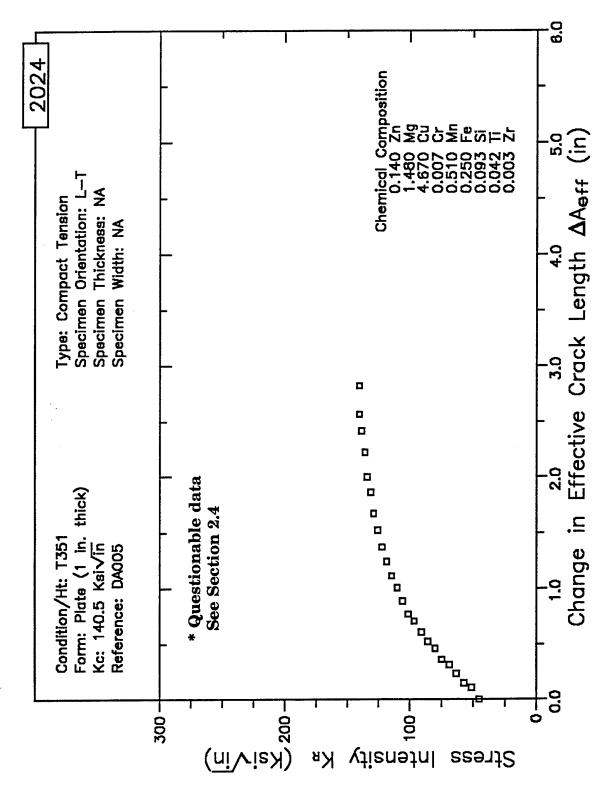


Figure 7.5.2.3.38

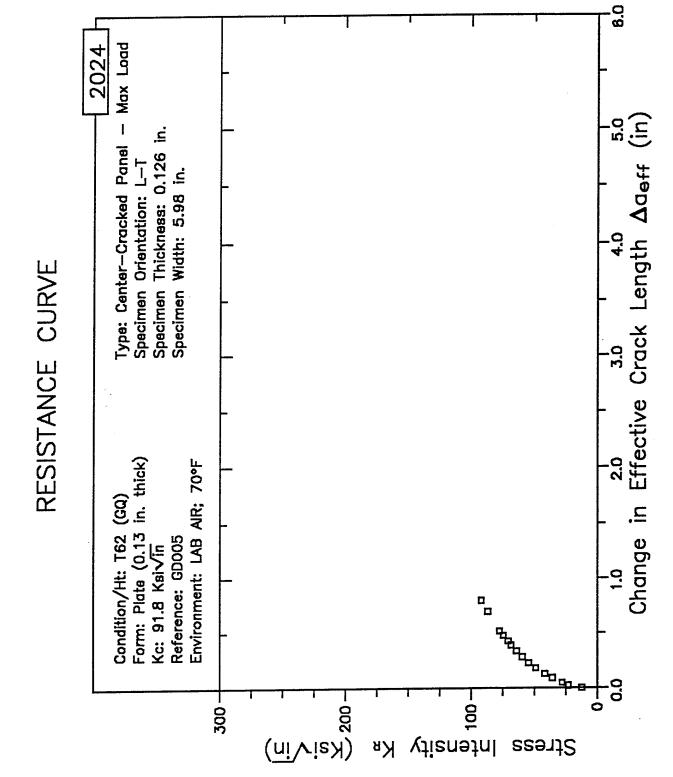


Figure 7.5.2.3.39



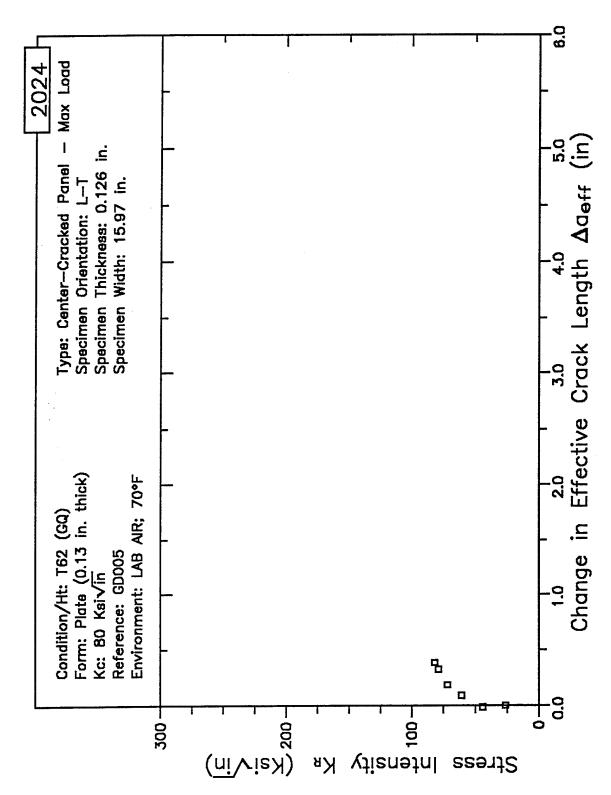


Figure 7.5.2.3.40

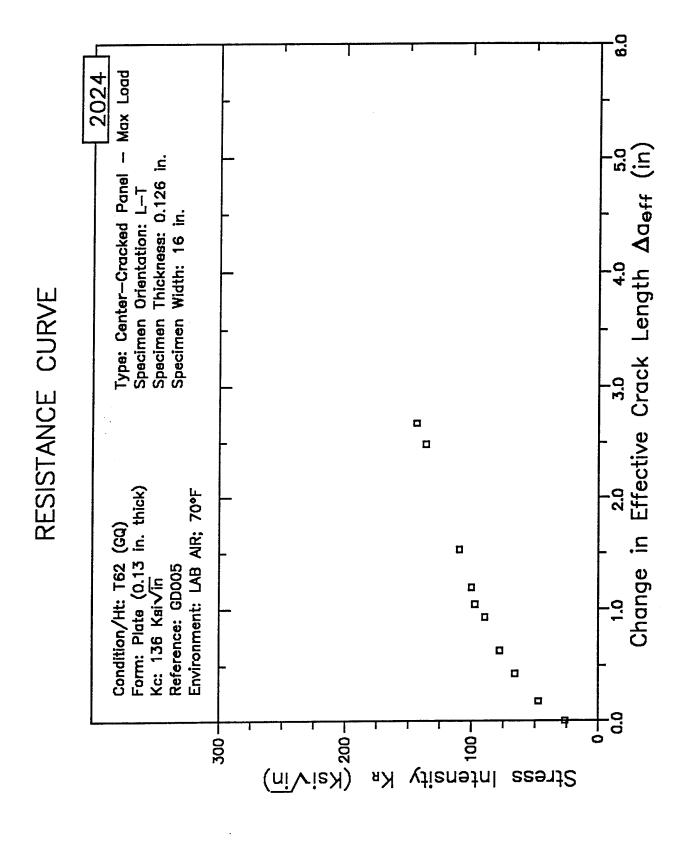


Figure 7.5.2.3.41

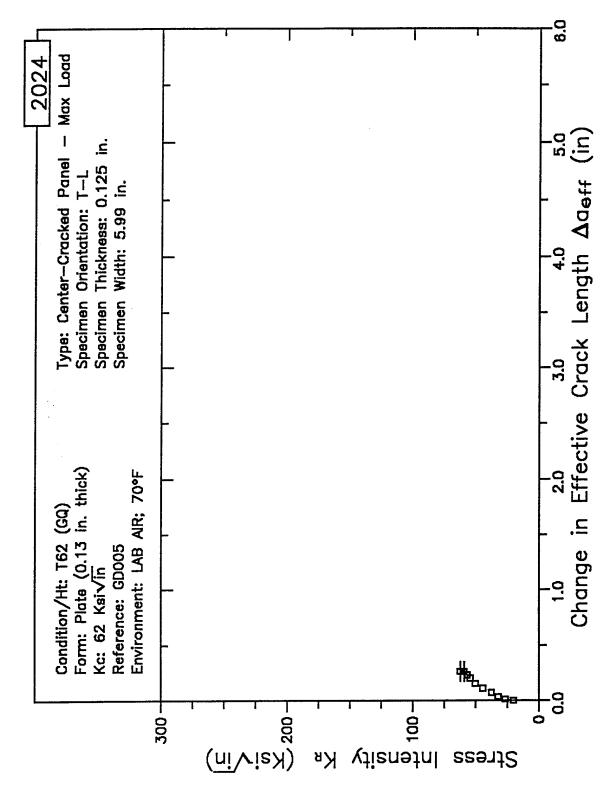


Figure 7.5.2.3.42

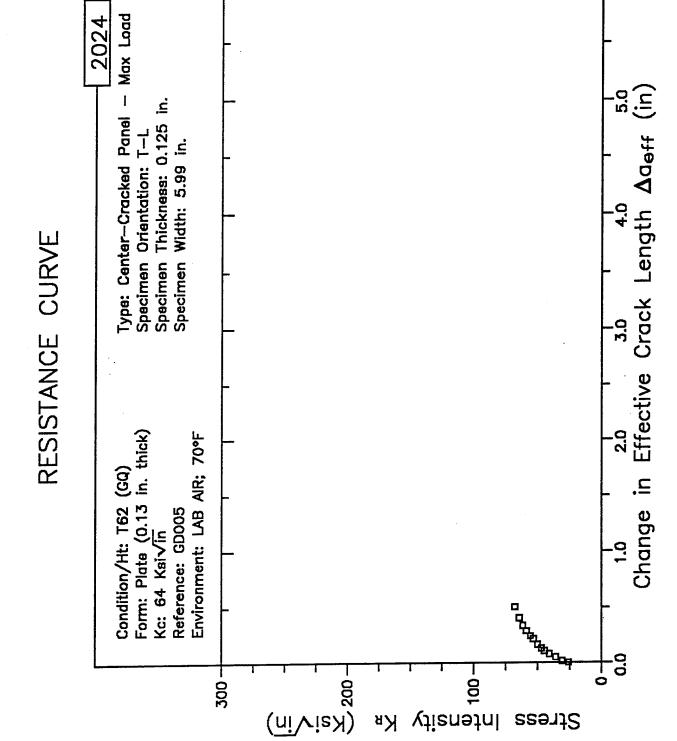


Figure 7.5.2.3.43



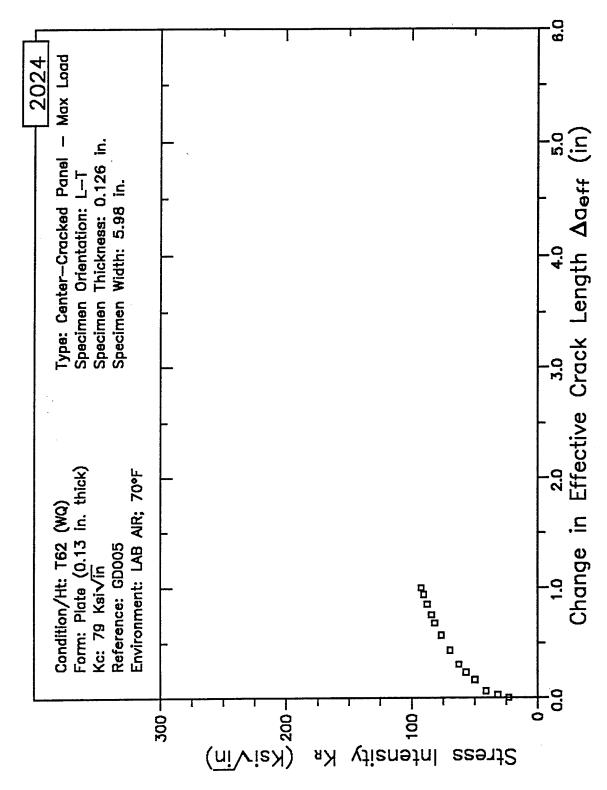


Figure 7.5.2.3.44

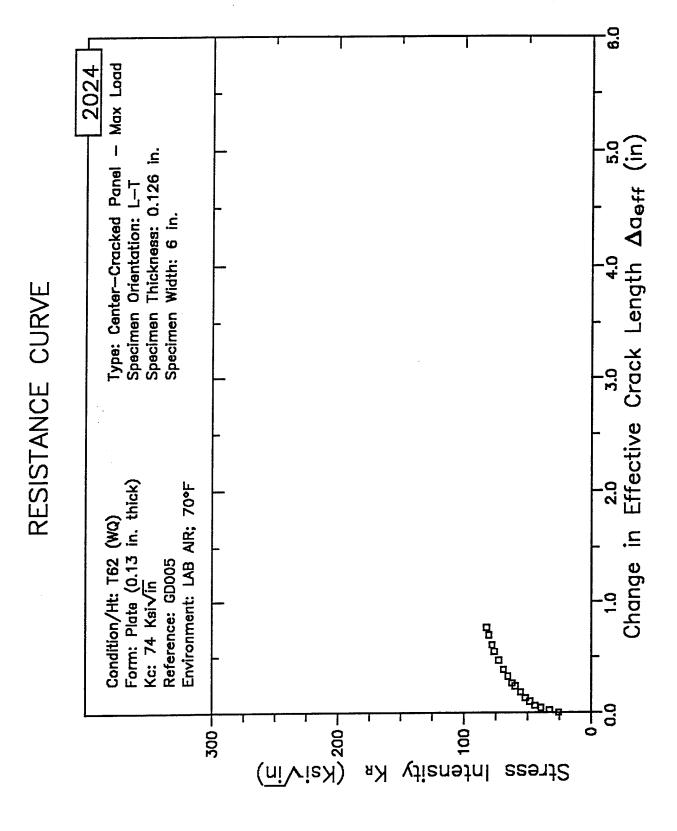


Figure 7.5.2.3.45

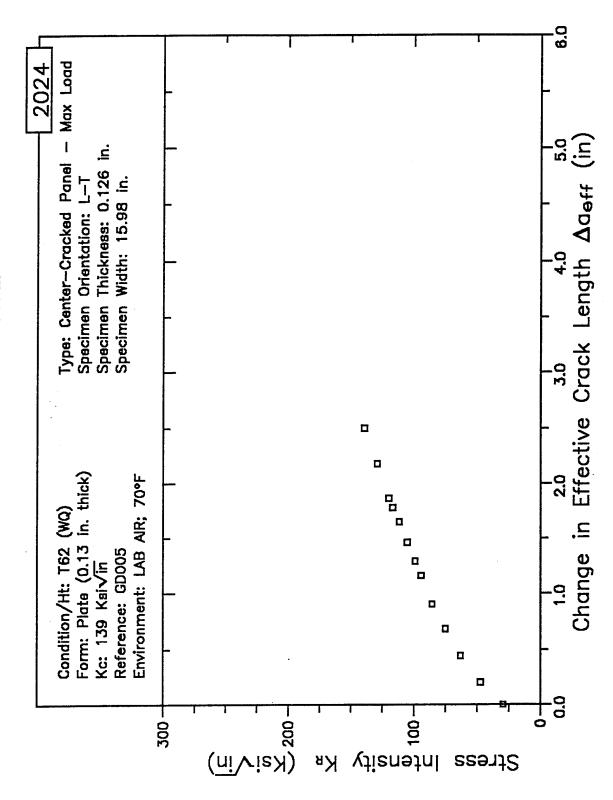


Figure 7.5.2.3.46



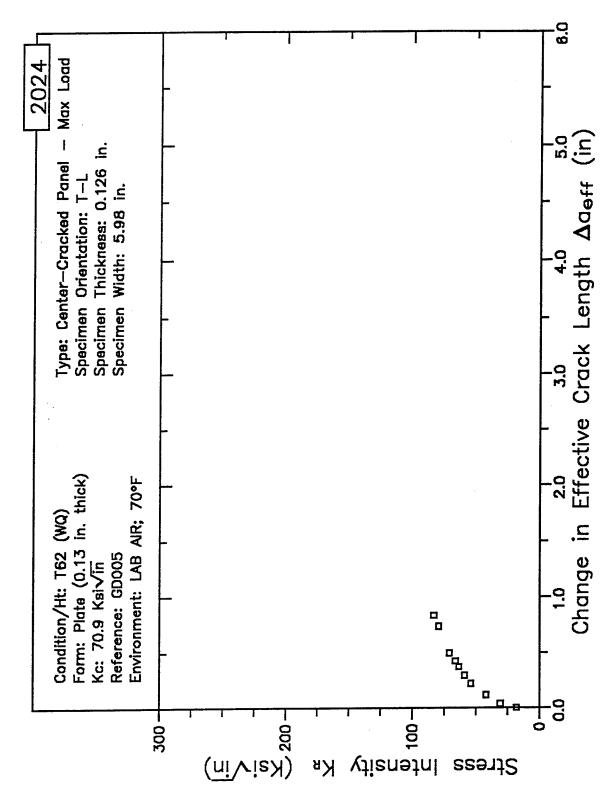


Figure 7.5.2.3.47

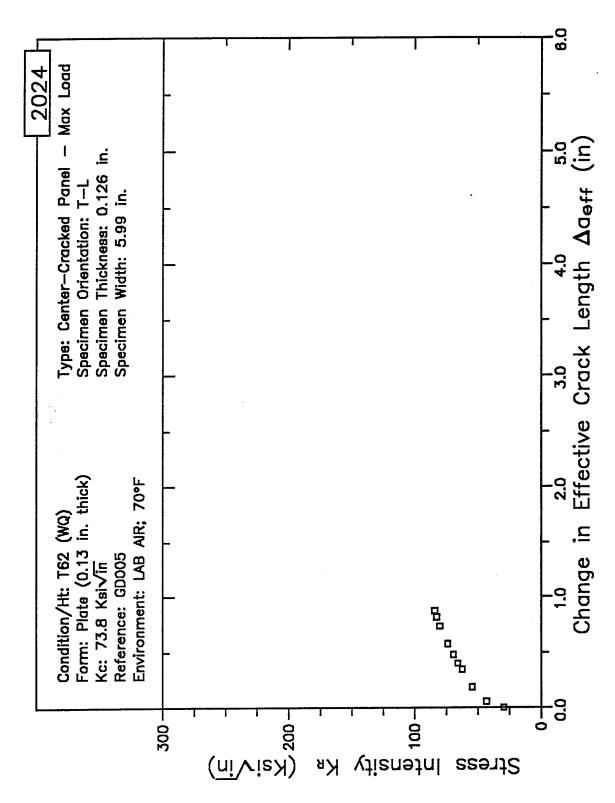


Figure 7.5.2.3.48

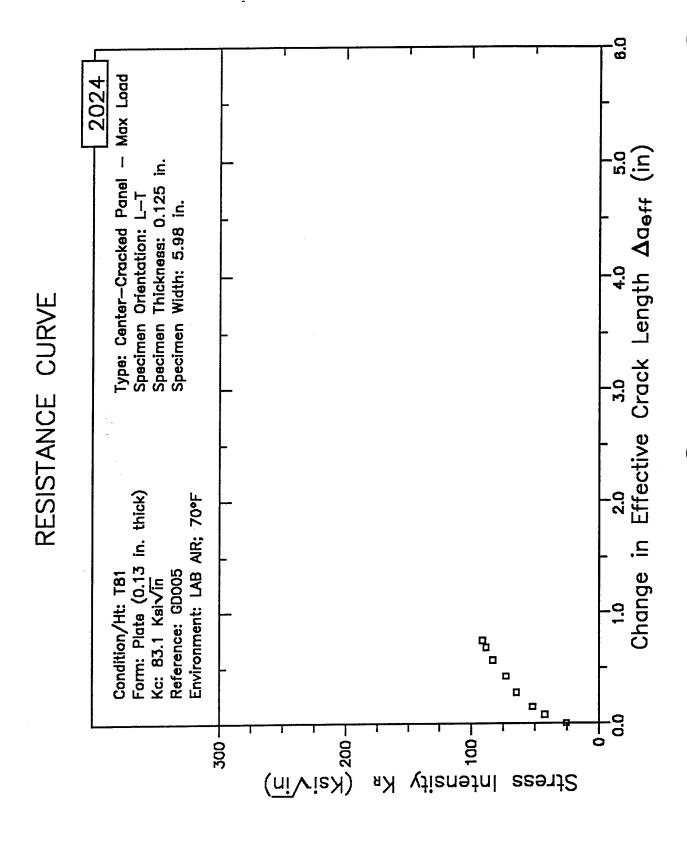


Figure 7.5.2.3.49

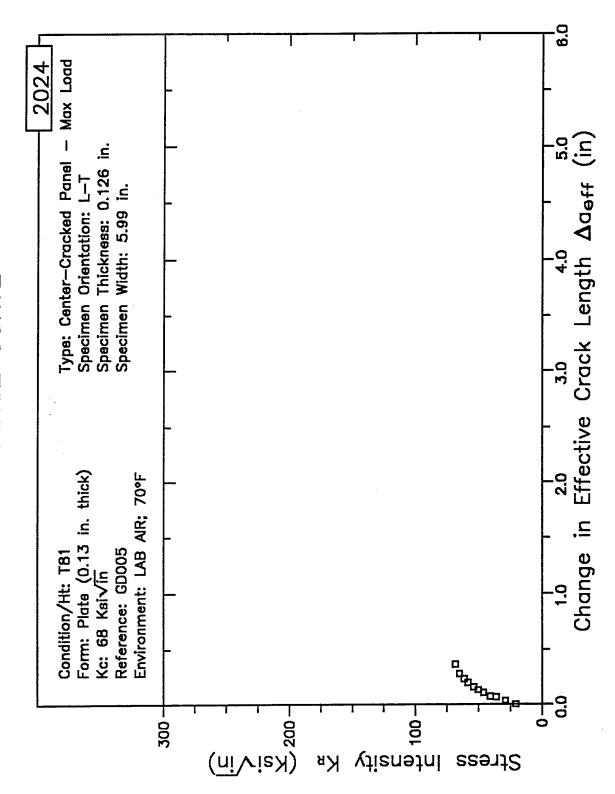


Figure 7.5.2.3.50

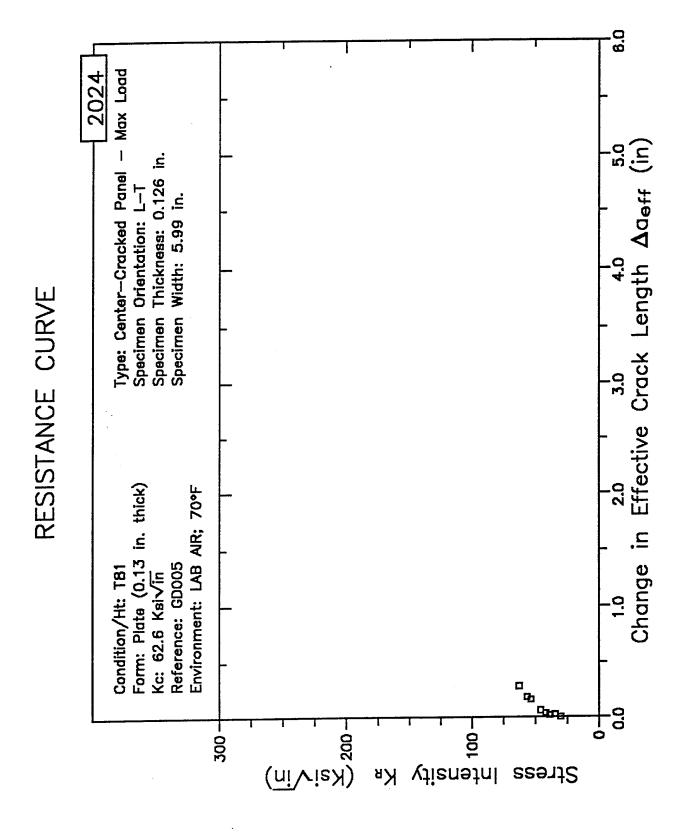


Figure 7.5.2.3.51

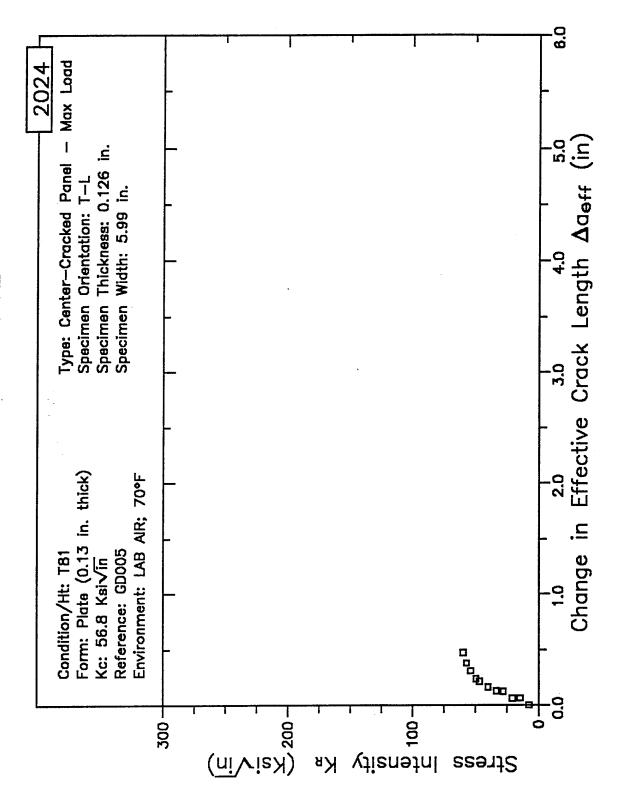


Figure 7.5.2.3.52

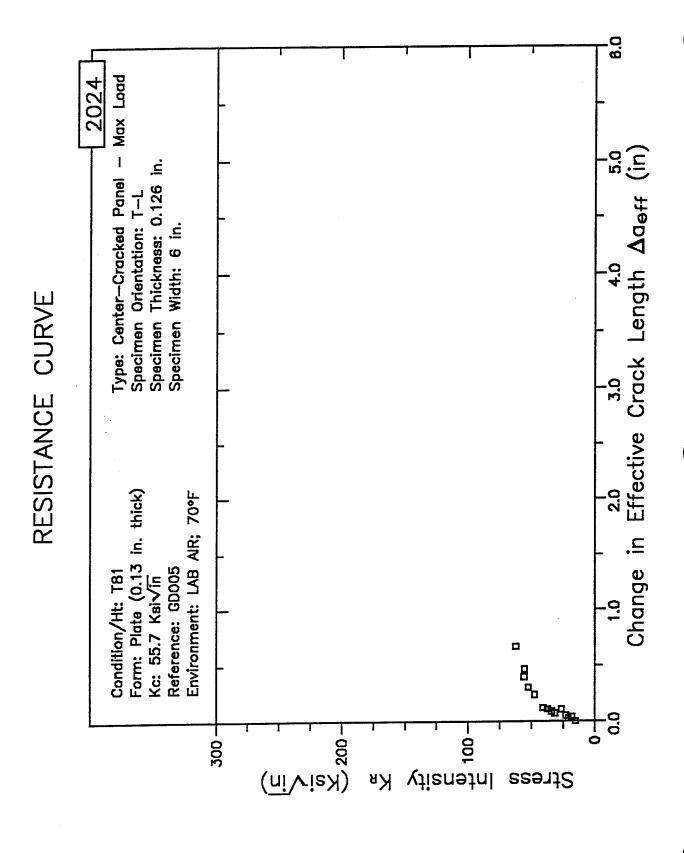


Figure 7.5.2.3.53

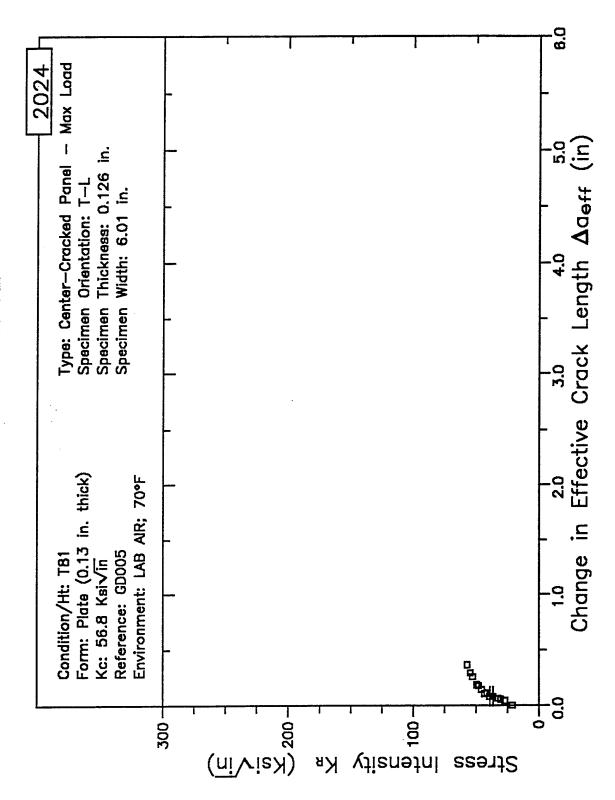


Figure 7.5.2.3.54

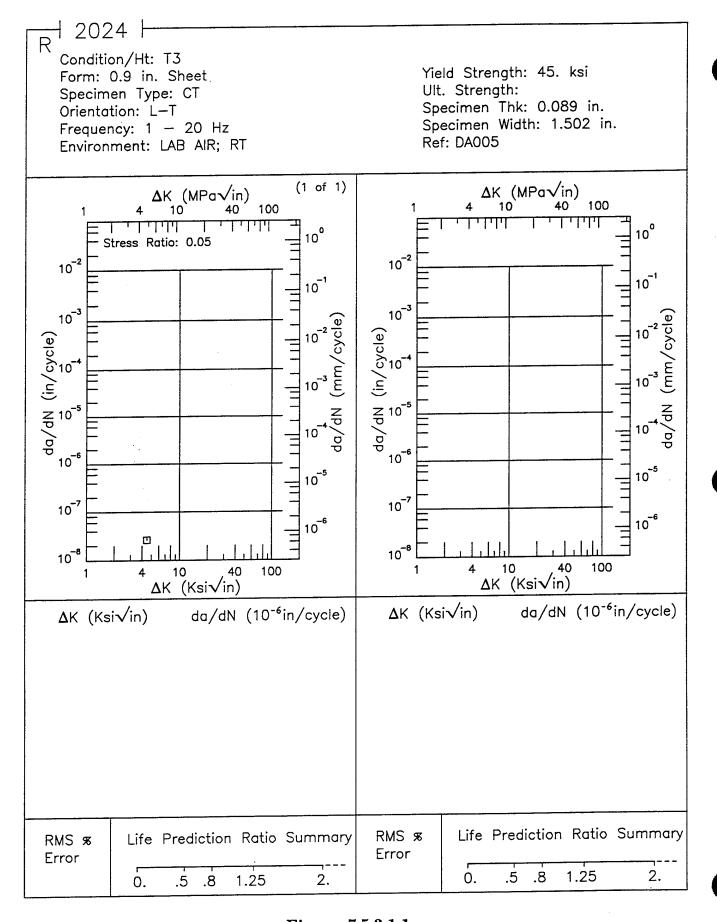


Figure 7.5.3.1.1

Condition/Ht: T3 Yield Strength: 45. - 52.5 ksi Form: 0.9 in. Sheet Ult. Strength: 67.5 ksi Specimen Type: CT Specimen Thk: 0.089 - 0.09 in. Orientation: L-T Specimen Width: 1.499 - 1.503 in: Frequency: 1 Hz Ref: DA004;DA005 Environment: DIST WATER; RT (1 of 2) (2 of 2) Δ K (MPa \sqrt{in}) ΔK (MPa \sqrt{in}) 100 100 10 10 40 7 7 7 7 7 7 1 1 1 1 1 1 1 10° 10° Stress Ratio: 0.8 Stress Ratio: 0.05 10⁻² 10-2 10 1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10 10⁻⁶ 10-6 10 -5 10 5 10⁻⁷ 10⁻⁷ 10⁻⁶ 10 6 10⁻⁸ 10⁻⁸ 40 100 10 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) $da/dN (10^{-6}in/cycle)$ da/dN (10⁻⁶in/cycle) **Δ**K (Ksi√in) ΔK (Ksi√in) 0.326 0.453 0.993 6.16 (min) 7. 8. 9. 3.55 (min) 4. 5. 3.80 6.11 (max) 10. 13. 16. 20. 25. 26.42 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error + 🕰 Error 18.33 17.17 Ò. .5 1.25 2. 0. 8. .5 .8 1.25 2.

┨ 2024 ┠

Figure 7.5.3.1.2

R 2024 H Condition/Ht: T3 Yield Strength: 45. - 51.2 ksi Form: 0.9 in. Sheet Ult. Strength: Specimen Type: CT Specimen Thk: 0.089 in. Orientation: L-T Specimen Width: 1.499 - 1.5 in. Frequency: 5 Hz Ref: DA005 Environment: DIST WATER; RT (1 of 1) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 100 10 40 100 10 40 11111 10° Stress Ratio: 0.05 10 -2 10-2 10 10 10⁻³ 10 -3 da/dN (in/cycle) da/dN (in/cycle) 10-6 10⁻⁶ 10 -5 10⁻⁷ 10⁻⁷ 10⁻⁶ 10-6 Ø 10 8 10 8 40 100 10 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) da/dN ($10^{-6}in/cycle$) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) Δ K (Ksi \sqrt{in}) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error .5 1.25 2. .8 .5 .8 1.25 2. 0. 0.

Figure 7.5.3.1.3

1 2024 F

Condition/Ht: T3 Form: 0.9 in. Sheet

Specimen Type: CT Orientation: L—T

Frequency: 1 - 5 Hz

Environment: DIST WATER; RT

Yield Strength: 45. - 51.2 ksi

Ult. Strength:

Specimen Thk: 0.089 in.

Specimen Width: 1.5 - 1.502 in.

Ref: DA005

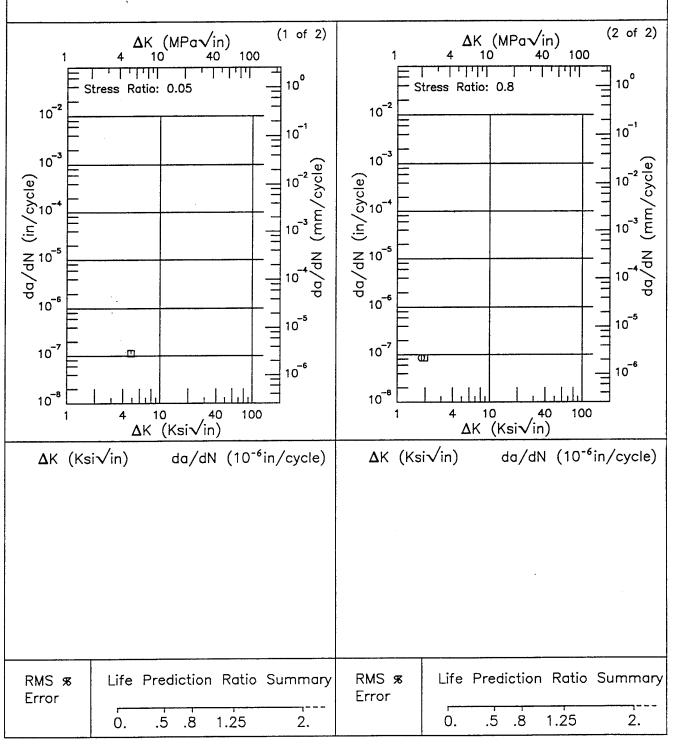


Figure 7.5.3.1.4

2024 H Condition/Ht: T3 Yield Strength: 45. - 51.2 ksi Form: 0.9 in. Sheet Ult. Strength: Specimen Type: CT Specimen Thk: 0.089 in. Orientation: L-T Specimen Width: 1.5 - 1.502 in. Stress Ratio: 0.8 Ref: DA005 Environment: LAB AIR; RT (2 of 2) (1 of 2) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 100 100 1 1111 111111 11111 10° 10° Frequency: 30. Hz Frequency: 15. Hz 10⁻² 10^{-2} 10⁻¹ 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10-6 10-6 10⁻⁵ 10 5 10 10-7 10⁻⁶ 10-6 10-8 10 8 40 100 10 100 10 40 ΔK (Ksi√in) ΔK (Ksi√in) da/dN ($10^{-6}in/cycle$) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error . 5 Ò. .8 1.25 2. .5 .8 1.25 2. 0.

Figure 7.5.3.1.5

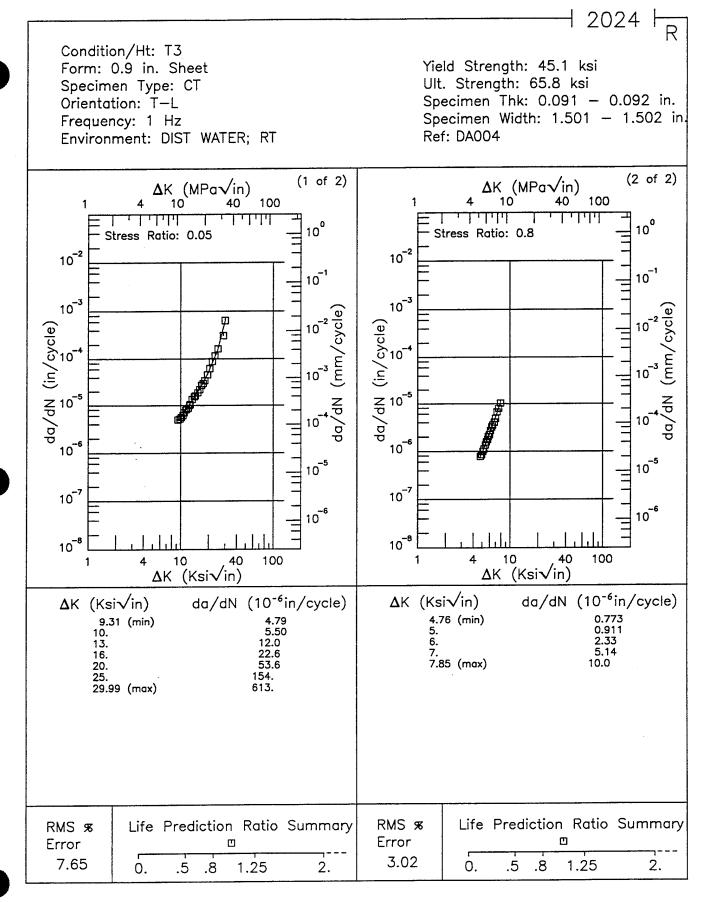


Figure 7.5.3.1.6

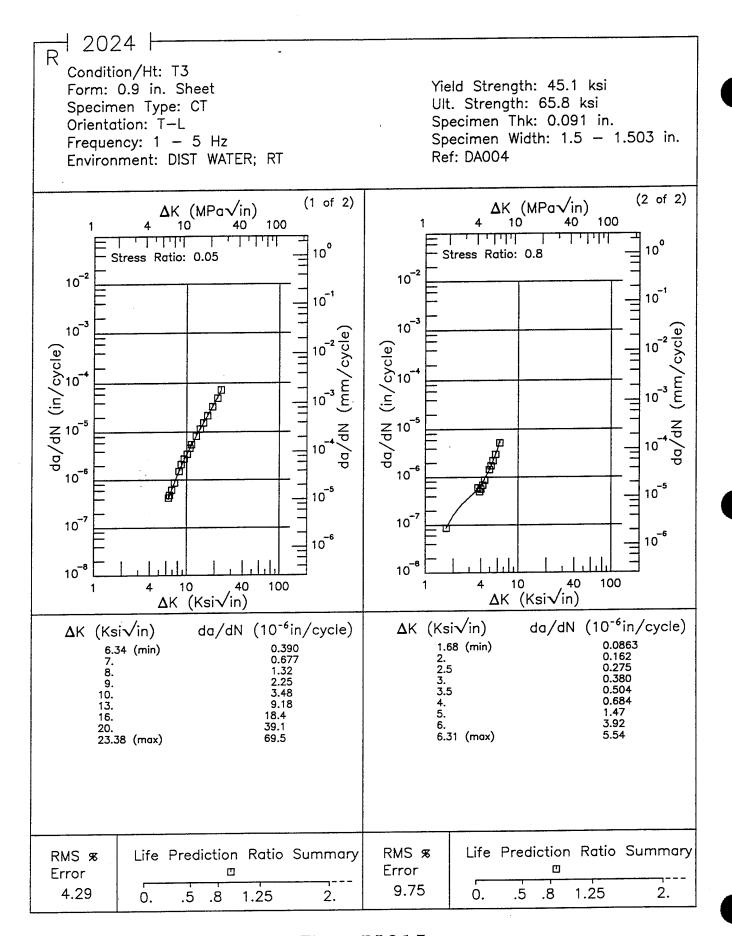


Figure 7.5.3.1.7

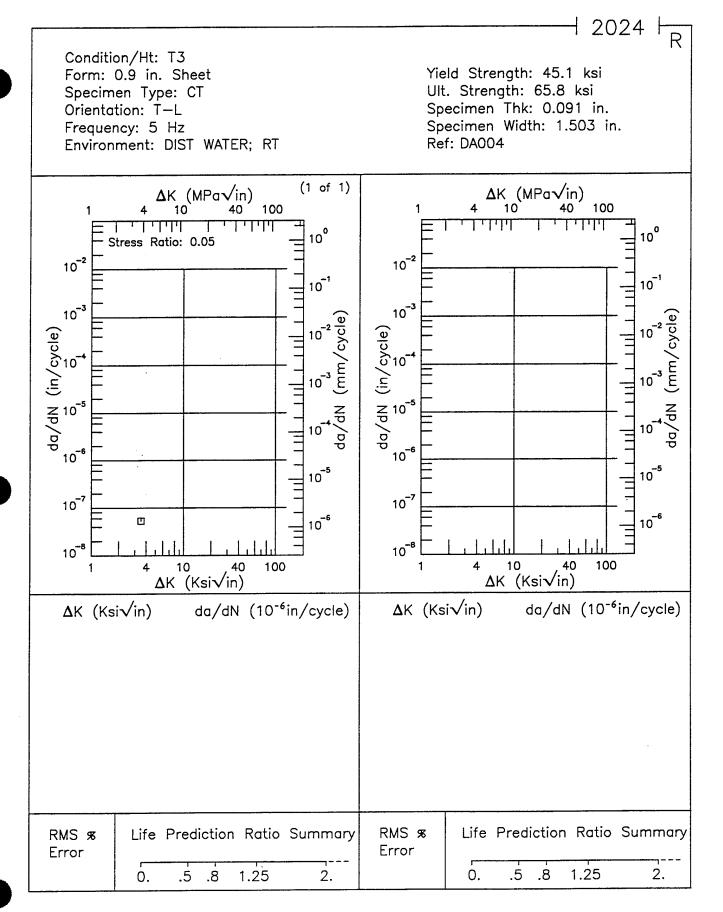


Figure 7.5.3.1.8

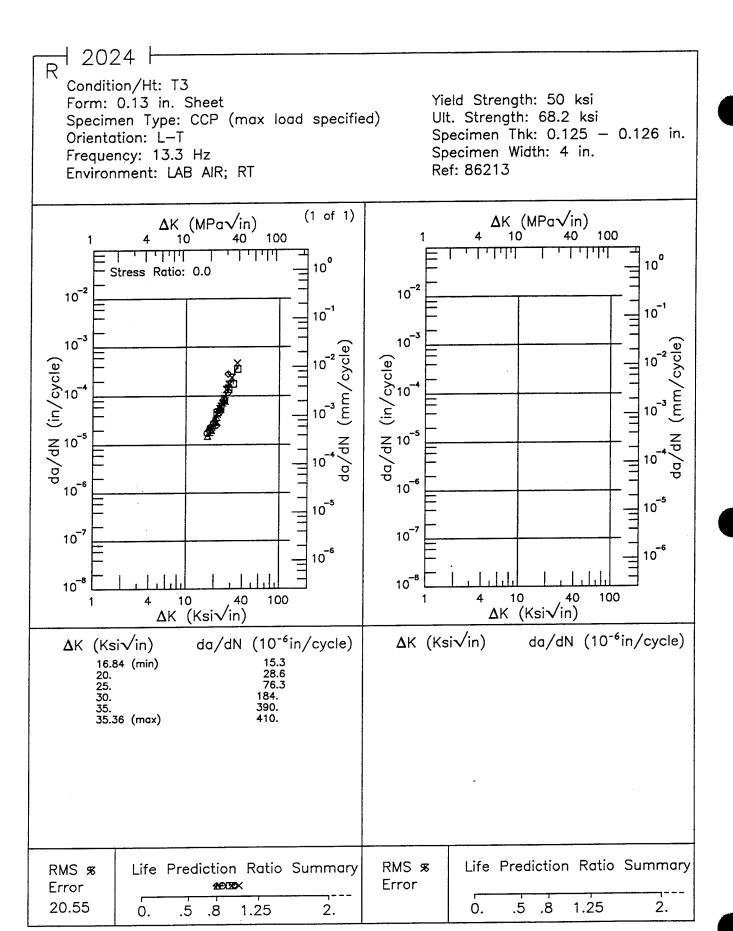


Figure 7.5.3.1.9

1 2024 Condition/Ht: T3 Yield Strength: 15-52.5 ksi Form: 0.9 in. Sheet Ult. Strength: 67.5 ksi Specimen Type: CCP (max load specified) Specimen Thk: 0.089 in. Orientation: L-T Specimen Width: 12.009-12.01 in. Stress Ratio: 0.05 Ref: DA004; DA005 Environment: LAB AIR; RT (2 of 2)(1 of 2) Δ K (MPa \sqrt{in}) 100 10 100 40 111111 للبليل 10⁰ 10° Frequency: 10. Hz Frequency: 5. Hz 10-2 10⁻² 10 -1 10 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10 10 -3 10⁻⁶ 10⁻⁶ 10 5 10 5 10⁻⁷ 10⁻⁷ 10 6 10⁻⁶ 10⁻⁸ 10⁻⁸ 100 10 40 100 10 40 ΔK (Ksi√in) ΔK (Ksi√in) Δ K (Ksi \sqrt{in}) ΔK (Ksi√in) da/dN ($10^{-6}in/cycle$) da/dN (10⁻⁶in/cycle) 2.97 (min) 3. 3.5 4. 5. 6. 7. 8. 9. 3.17 (min) 3.5 0.0669 0.0614 0.0767 0.0672 0.0823 6. 7. 8. 9. 10. 10. 16. 13. 20. 16. 30. 387. 20. 24.00 (max) 40. 947. 8309. 77.51 (max) 37569. Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % \Box

Figure 7.5.3.1.10

2.

Error

14.23

.5

8.

0.

1.25

Error

14.00

0.

.5

8.

1.25

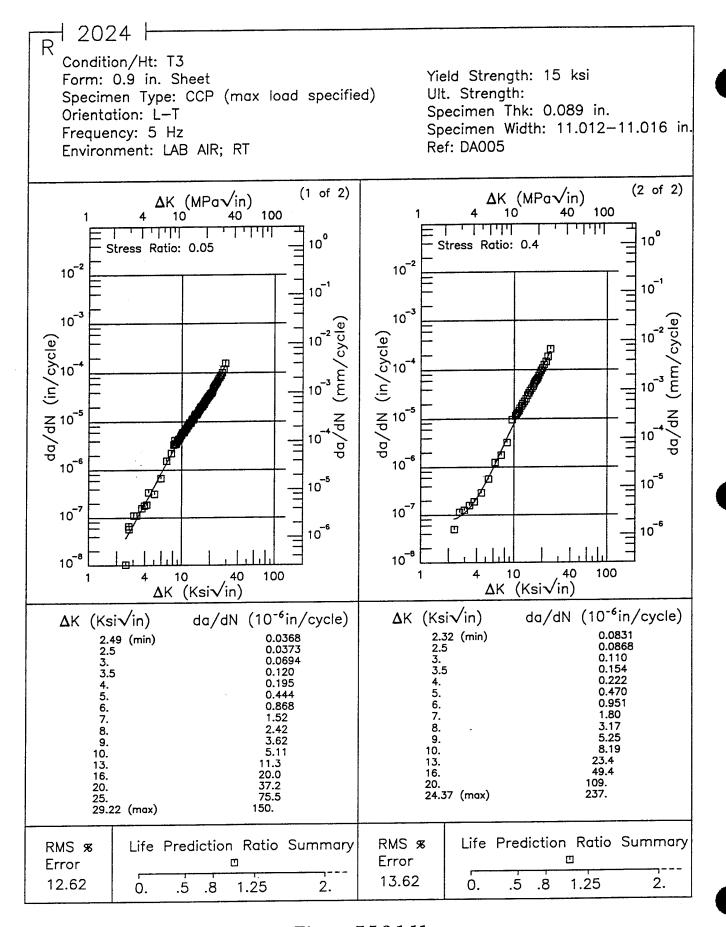
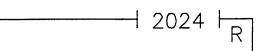


Figure 7.5.3.1.11



Condition/Ht: T3 Form: 0.13 in. Sheet

Specimen Type: CCP (max load specified)

Orientation: L-T Frequency: 2 Hz

Environment: H.H.A.; RT

Yield Strength: 49 ksi Ult. Strength: 66 ksi Specimen Thk: 0.128 in. Specimen Width: 12 in.

Ref: 86212

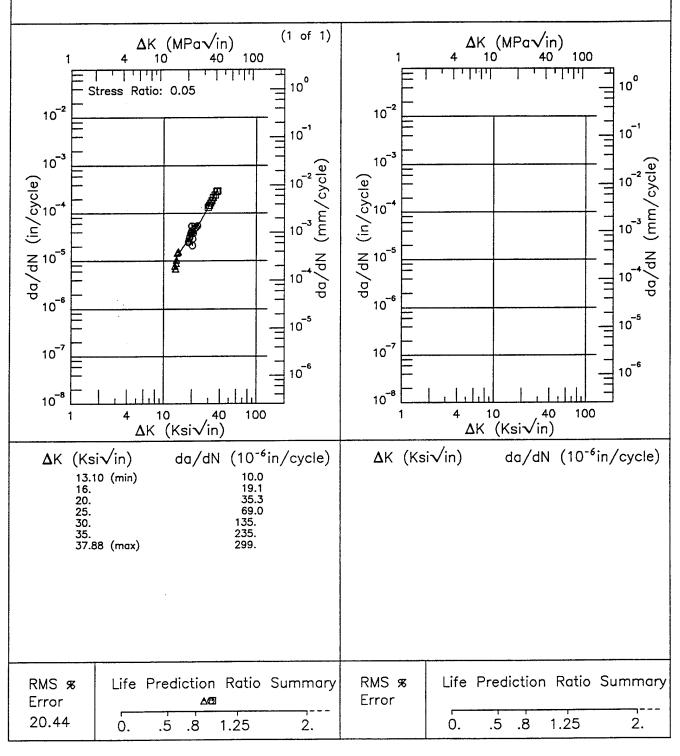


Figure 7.5.3.1.12

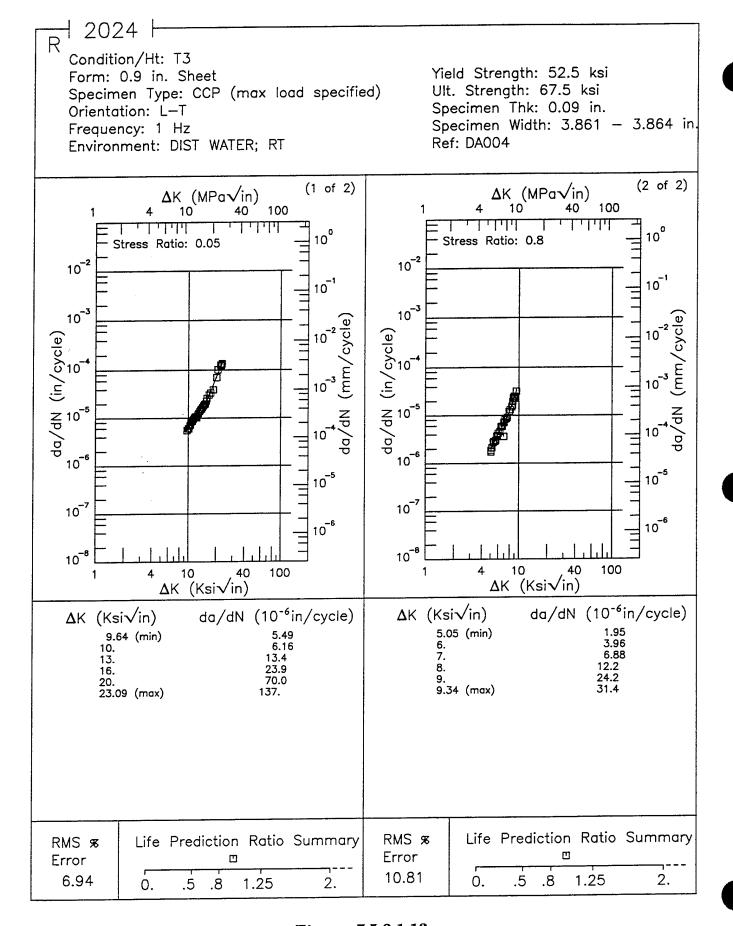


Figure 7.5.3.1.13

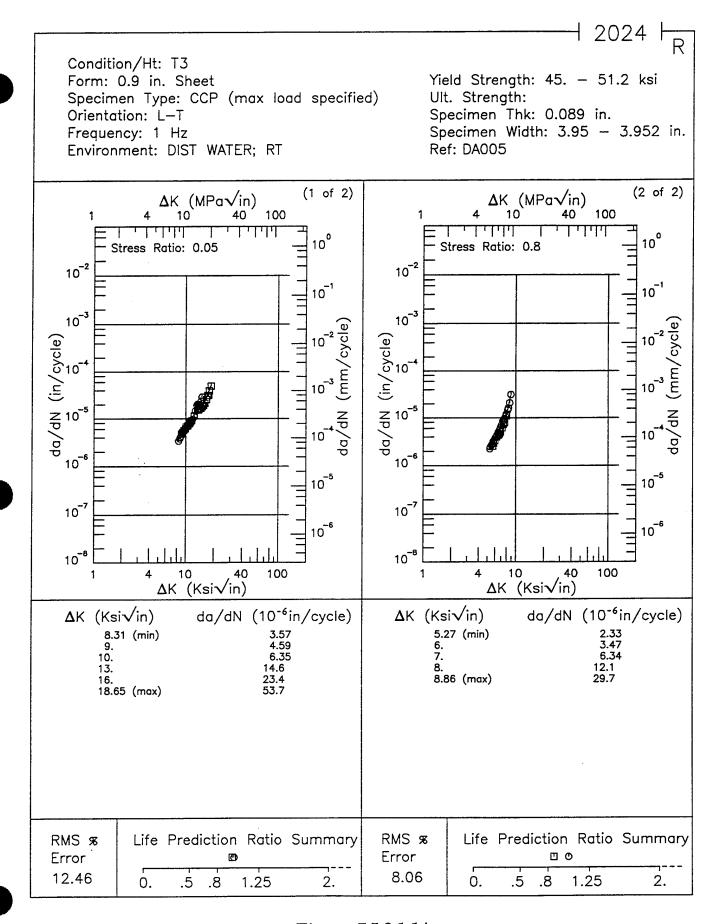


Figure 7.5.3.1.14

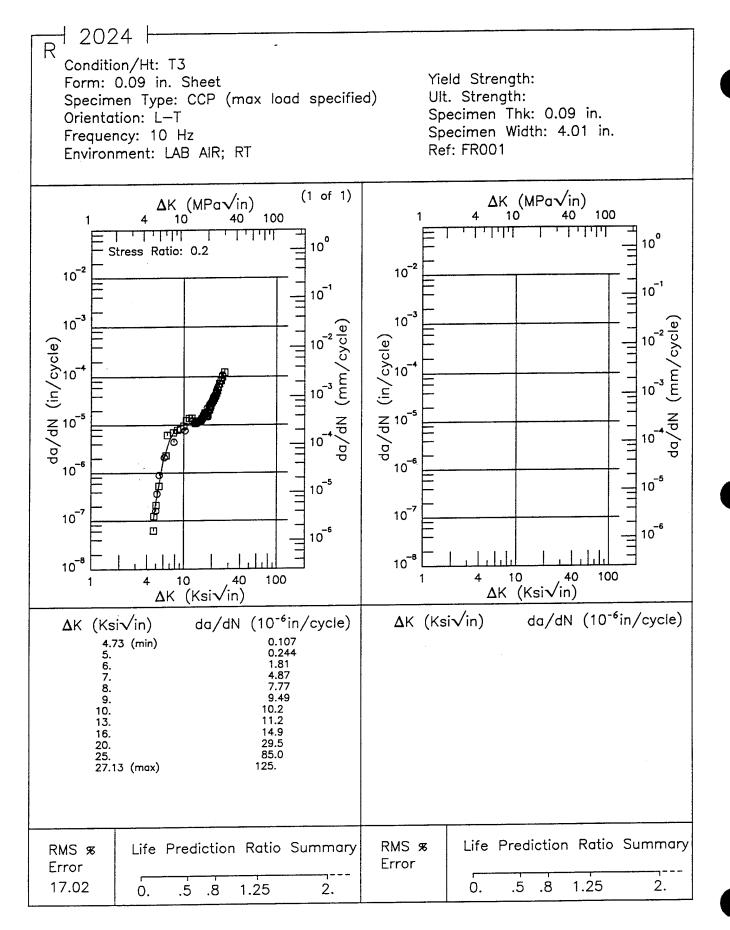


Figure 7.5.3.1.15

Condition/Ht: T3 Form: 0.04 in. Sheet Yield Strength: 45 ksi Ult. Strength: 69 ksi Specimen Type: CCP (max load specified) Specimen Thk: 0.039 in. Orientation: L-T Specimen Width: 16 in. Frequency: 3.3 Hz Ref: 87398 Environment: LAB AIR; RT (1 of 1)∆K (MPa√in) ΔK (MPa \sqrt{in}) 10 10 100 100 10° 10° Stress Ratio: 0.33 10⁻² 10⁻² 10⁻¹ 10 1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10 -5 10⁻⁵ 10⁻⁷ 10-7 10⁻⁶ 10-6 10 8 10⁻⁸ 10 40 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) **Δ**K (Ksi√in) da/dN ($10^{-6}in/cycle$) Δ K (Ksi \sqrt{in}) da/dN ($10^{-6}in/cycle$) 12.30 (min) 13. 16. 20. 197. 31.48 (max) 5315. Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % 0 × 495A Error Error 18.50 1.25 0. .5 .8 2. 0. .5 .8 1.25 2.

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Figure 7.5.3.1.16

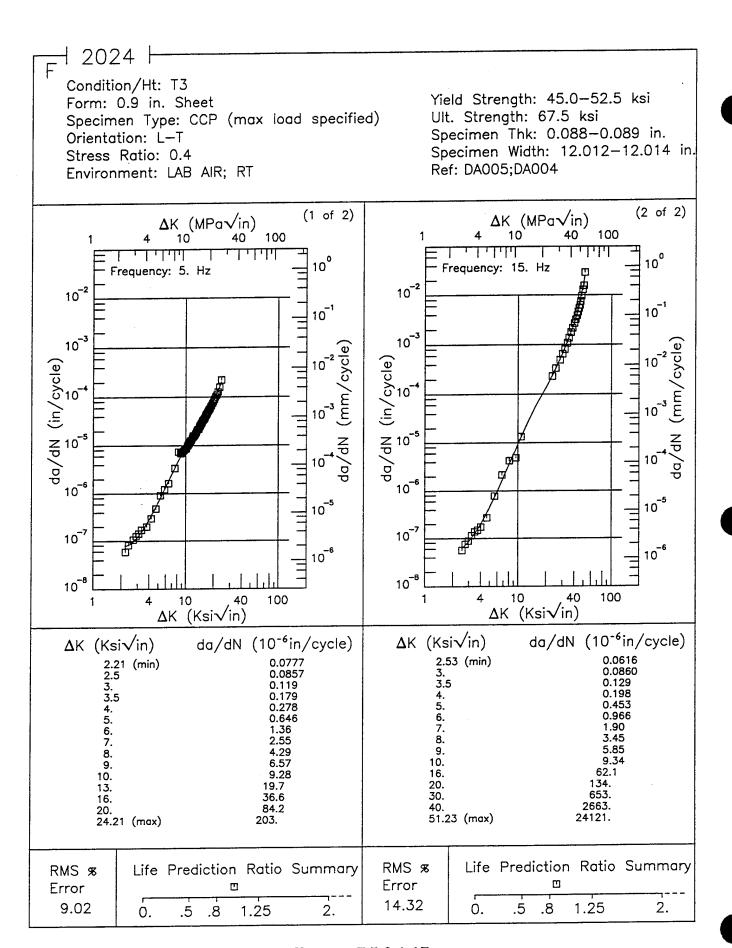


Figure 7.5.3.1.17

1 2024 F

Condition/Ht: T3 Form: 0.9 in. Sheet

Specimen Type: CCP (max load specified)

Orientation: L—T Stress Ratio: 0.8

Environment: LAB AIR; RT

Yield Strength: 15.0-52.5 ksi

Ult. Strength: 67.5 ksi

Specimen Thk: 0.086-0.089 in. Specimen Width: 11.998-12.012 in.

Ref: DA005;DA004

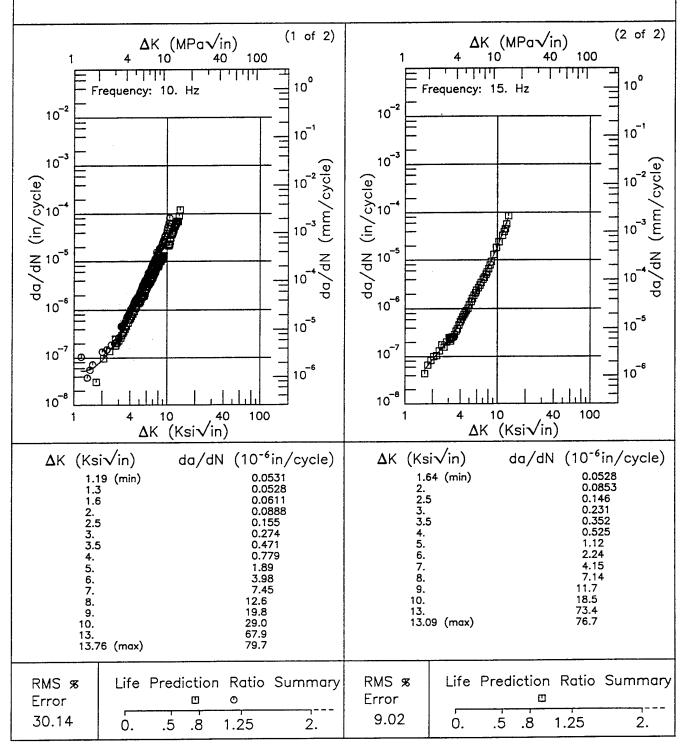


Figure 7.5.3.1.18

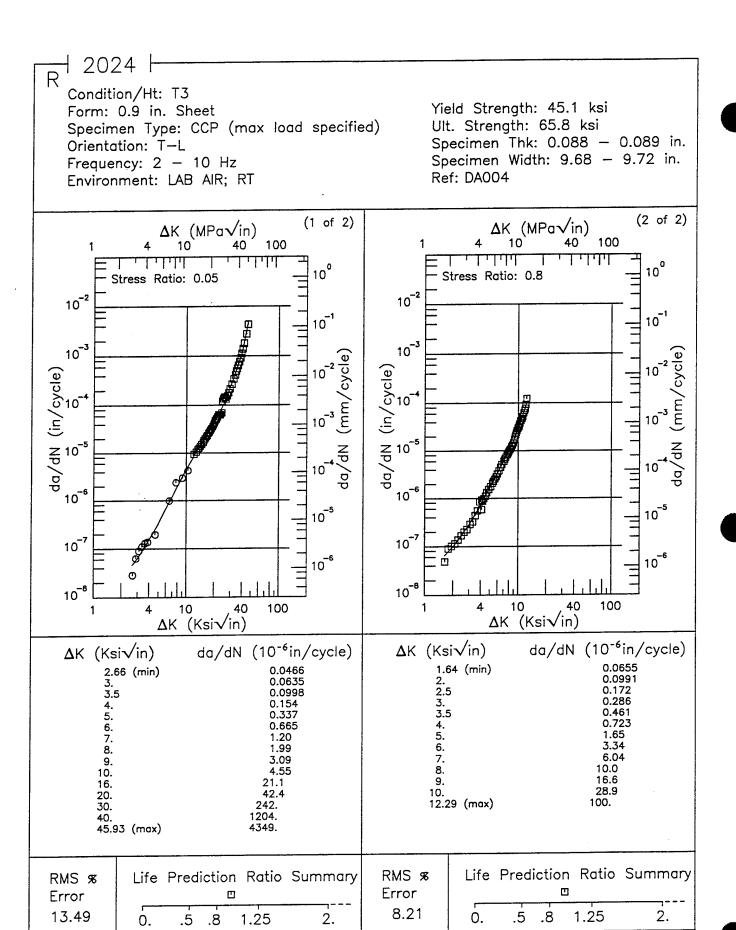


Figure 7.5.3.1.19

1 2024 Condition/Ht: T3 Form: 0.9 in. Sheet Yield Strength: 45.1 ksi Specimen Type: CCP (max load specified) Ult. Strength: 65.8 ksi Specimen Thk: 0.089 in. Orientation: T-L Specimen Width: 9.705 in. Frequency: 0.5 - 15 Hz Ref: DA004 Environment: LAB AIR; RT (1 of 1) ΔK (MPa√in) ΔK (MPa√in) 10 100 10 100 10° 10° Stress Ratio: 0.4 10-2 10 2 10⁻¹ 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10 -5 10 -5 10⁻⁷ 10-7 10 6 10 6 \Box 10 8 10⁻⁸ 100 100 10 40 10 40 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 2.18 (min) 2.5 3. 3.5 4. 0.0651 0.0788 6. 7. 8. 9. 16. 108. 20. 30. 783. 36.70 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 10.16 .5 .8 1.25 2. .5 .8 1.25 2. 0. 0.

Figure 7.5.3.1.20

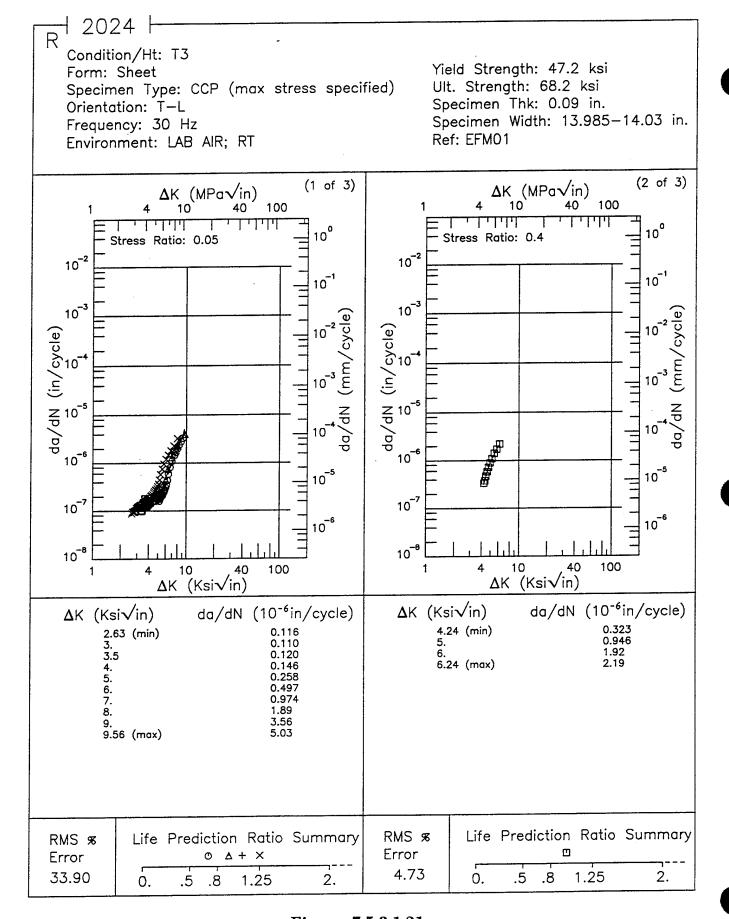


Figure 7.5.3.1.21

Condition/Ht: T3
Form: Sheet
Specimen Type: CCP (max stress specified)
Orientation: T-L
Frequency: 30 Hz
Environment: LAB AIR; RT

Syecimen Type: CCP (max stress specified)
Specimen Thk: 0.09 in.
Specimen Width: 13.985-14.03 in.
Ref: EFM01

ΔK (MPa√in)

ΔK (MPa√in)

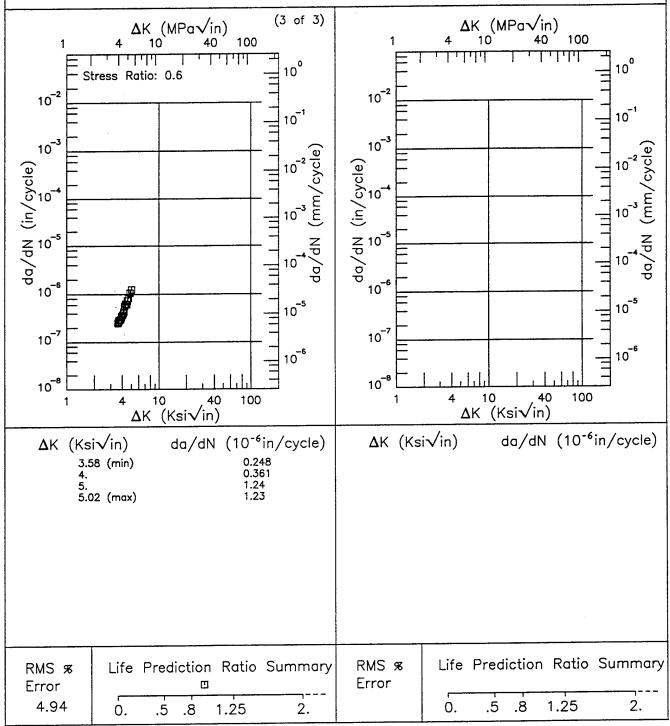


Figure 7.5.3.1.21 (Concluded)

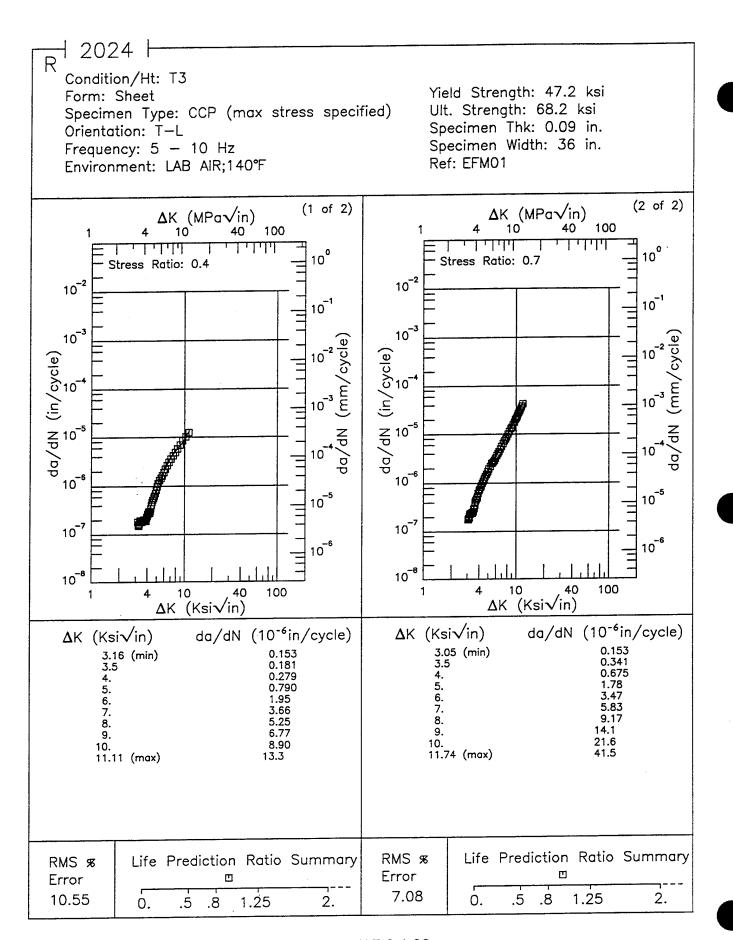


Figure 7.5.3.1.22

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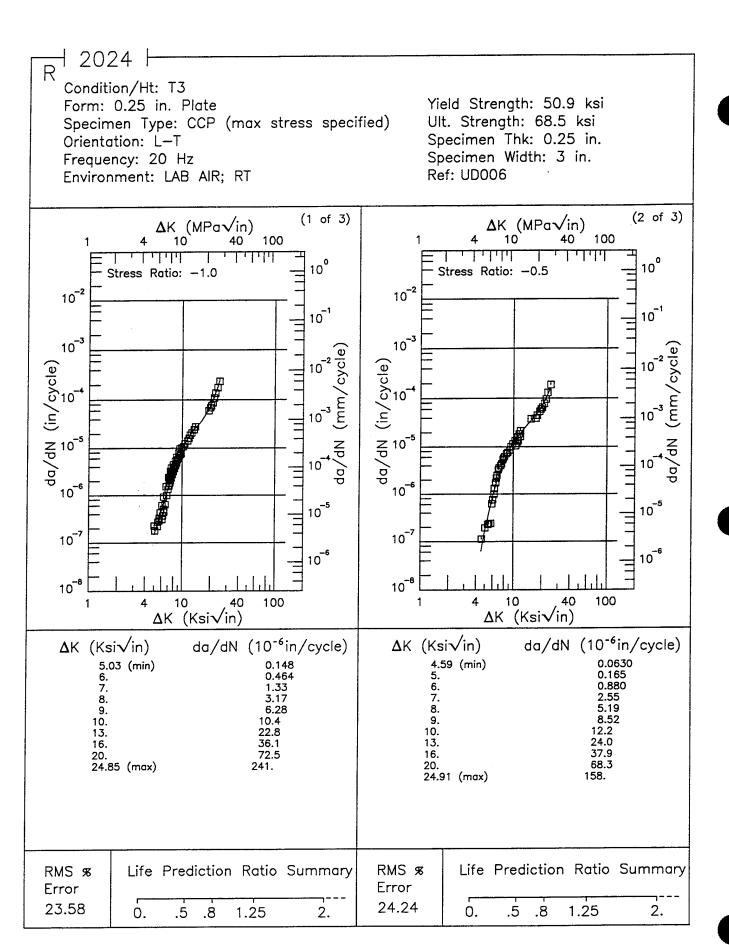


Figure 7.5.3.1.23

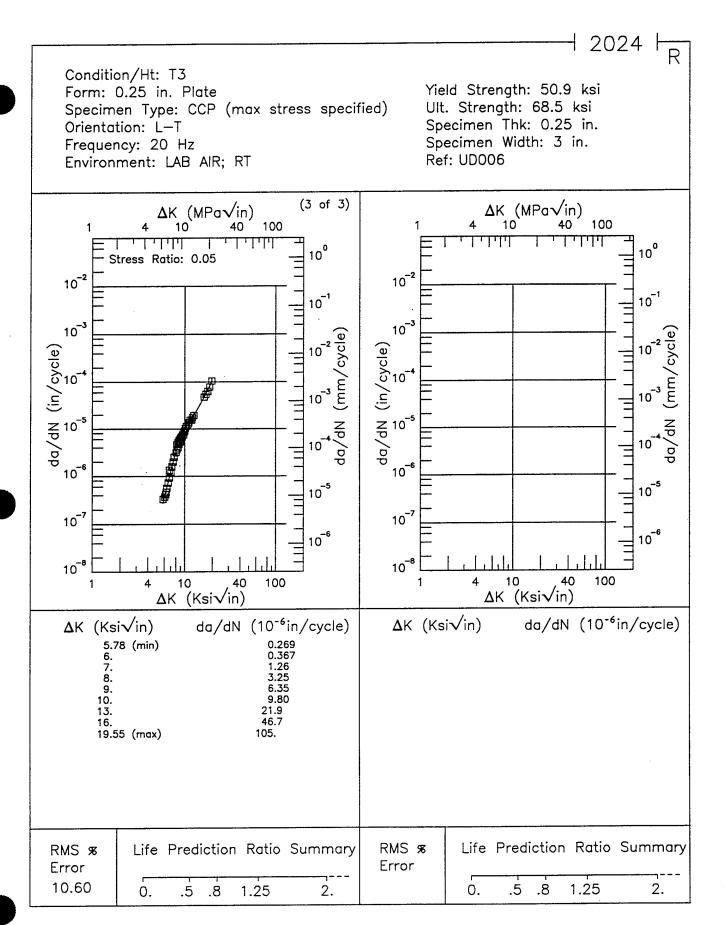


Figure 7.5.3.1.23 (Concluded)

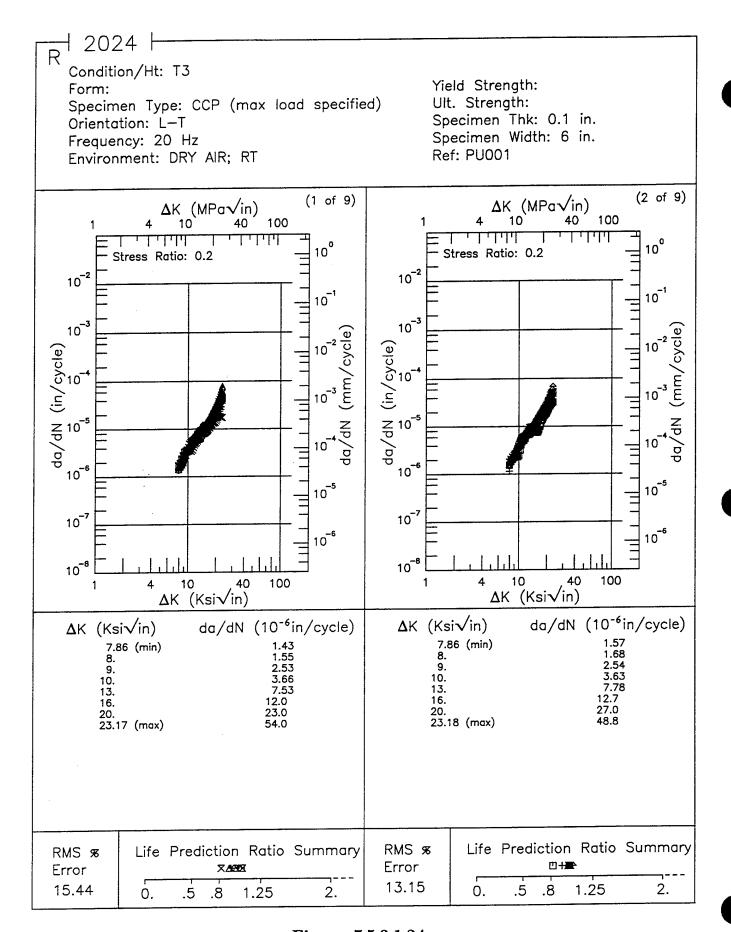


Figure 7.5.3.1.24

1 2024 FR Condition/Ht: T3 Yield Strength: Form: Specimen Type: CCP (max load specified) Ult. Strength: Orientation: L-T Specimen Thk: 0.1 in. Specimen Width: 6 in. Frequency: 20 Hz Ref: PU001 Environment: DRY AIR; RT (4 of 9) (3 of 9) $\Delta K (MPa\sqrt{in})$ Δ K (MPa \sqrt{in}) 100 <u>, 1, 1, 1, 1, 1, 1, 1</u> 10° 10° Stress Ratio: 0.2 Stress Ratio: 0.2 10-2 10-2 10⁻¹ 10⁻¹ 10⁻³ 10⁻³ 10-2 da/dN (in/cycle) da/dN (in/cycle) 10⁻³ 10⁻⁶ 10-6 10⁻⁵ 10⁻⁵ 10⁻⁷ 10 10⁻⁶ 10-6 10 8 10⁻⁸ 40 100 10 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) $da/dN (10^{-6}in/cycle)$ ΔK (Ksi√in) da/dN ($10^{-6}in/cycle$) 7.84 (min) 7.86 (min) 1.63 2.60 1.61 2.62 8. 9. 8. 9. 10. 13. 16. 3.72 10. 13. 16. 20. 23.16 (max) 20. 23.16 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % X9ED @ Error Error 11.58 16.78 .5 1.25 .8 2. 0. .5 .8 1.25 2.

Figure 7.5.3.1.24 (Continued)

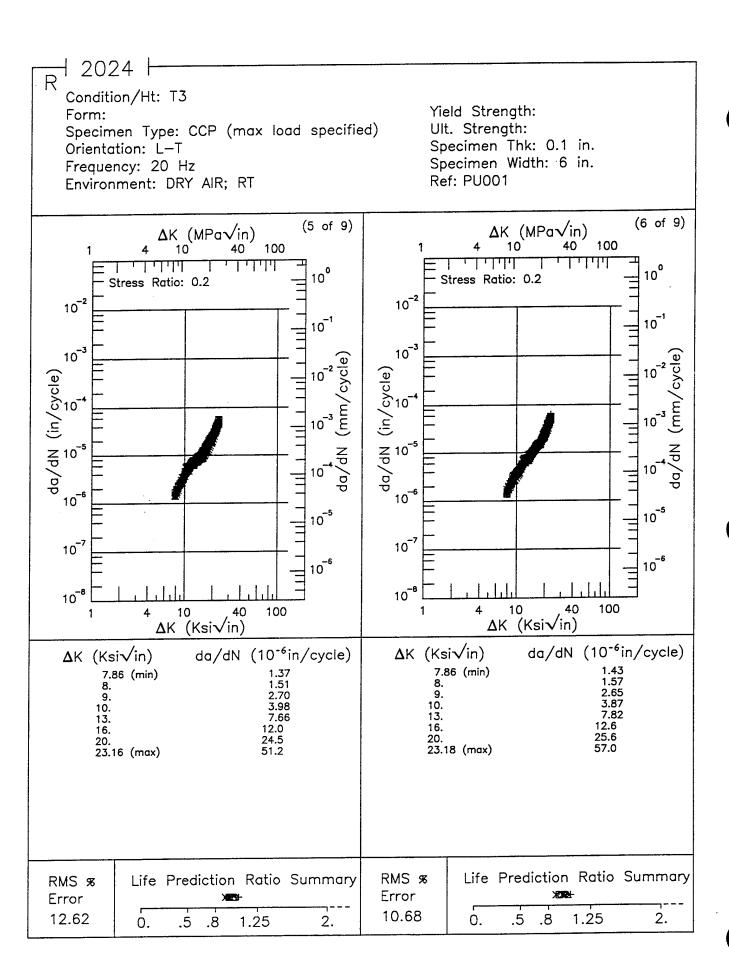


Figure 7.5.3.1.24 (Continued)

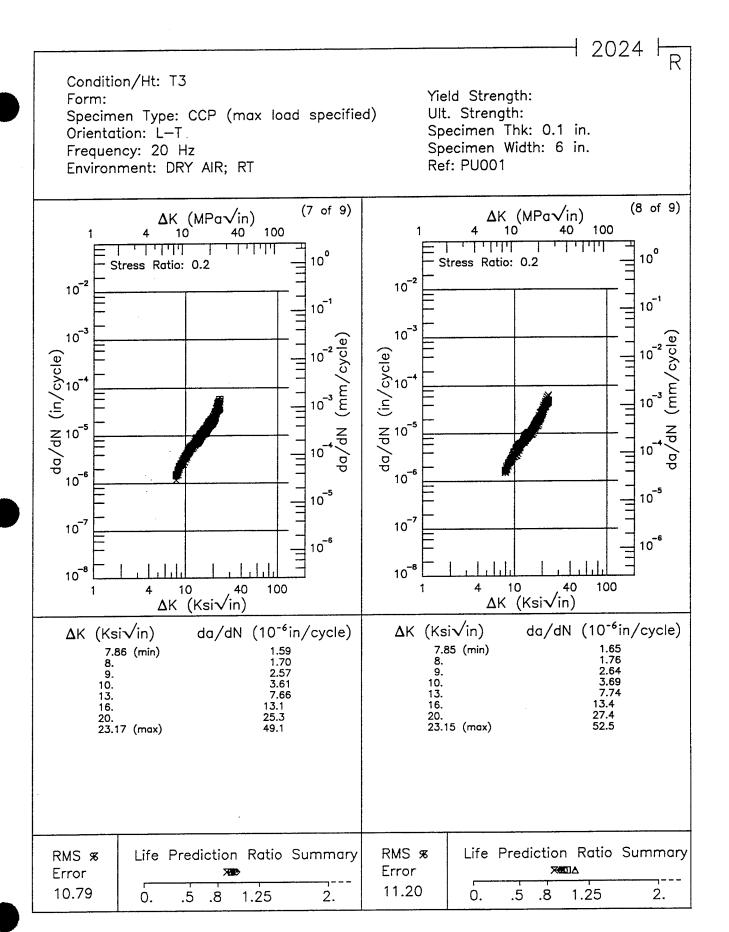


Figure 7.5.3.1.24 (Continued)

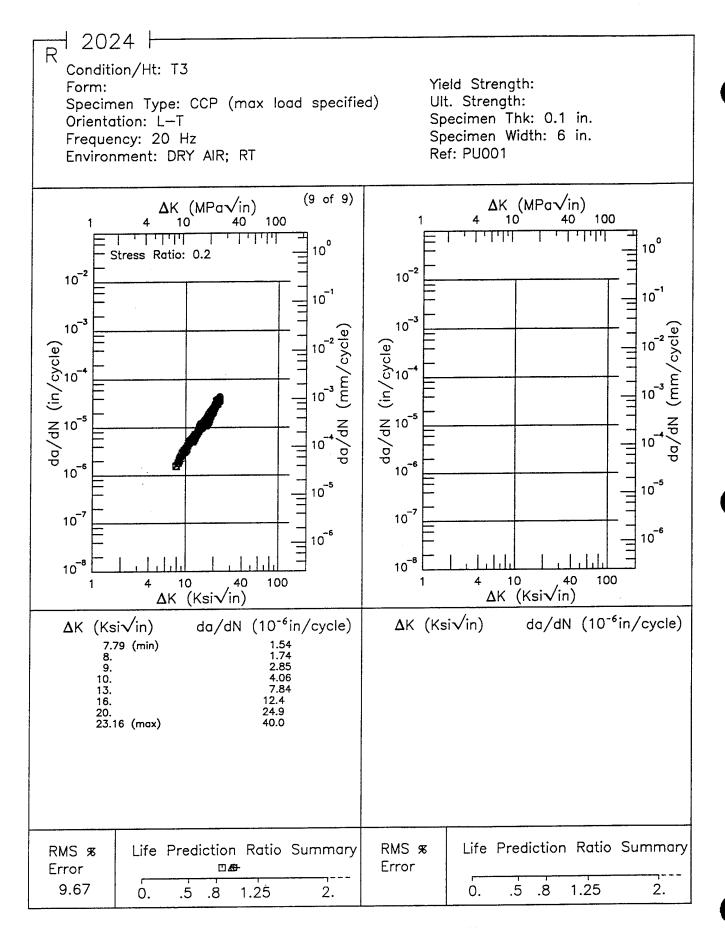


Figure 7.5.3.1.24 (Concluded)

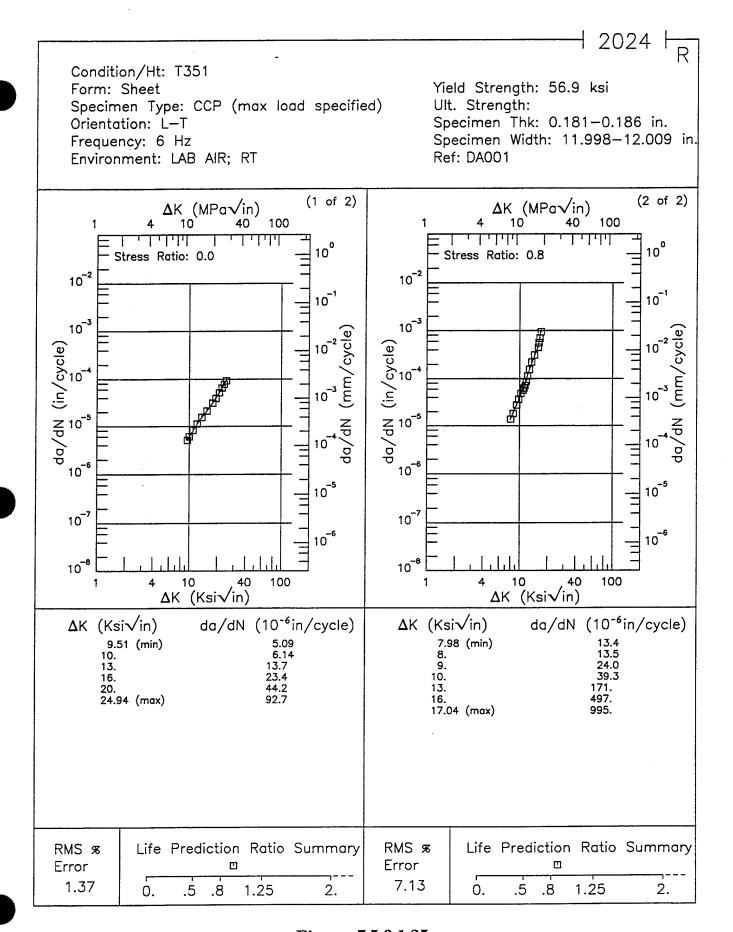


Figure 7.5.3.1.25

l 2024 l Condition/Ht: T351 Yield Strength: 56.9 ksi Form: Sheet Specimen Type: CCP (max load specified) Ult. Strength: Specimen Thk: 0.184 in. Orientation: L-T Specimen Width: 12.002 in. Frequency: 3 Hz Ref: DA001 Environment: LAB AIR; RT (1 of 1) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 100 100 10 40 TITI 10° 10° Stress Ratio: 0.4 10-2 10-2 10-1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) b 0, 0, 10 10-6 10⁻⁶ 10 5 10⁻⁵ 10⁻⁷ 10⁻⁷ 10⁻⁶ 10 -6 10 -8 10⁻⁸ 10 40 100 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) da/dN ($10^{-6}in/cycle$) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) **Δ**K (Ksi√in) 15.81 (min) 57.8 61.5 16. 20. 25. 30. 33.80 (max) 989. 1576. Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error 四 Error .8 1.25 1.77 0. .5 2. .5 1.25 2.

Figure 7.5.3.1.26

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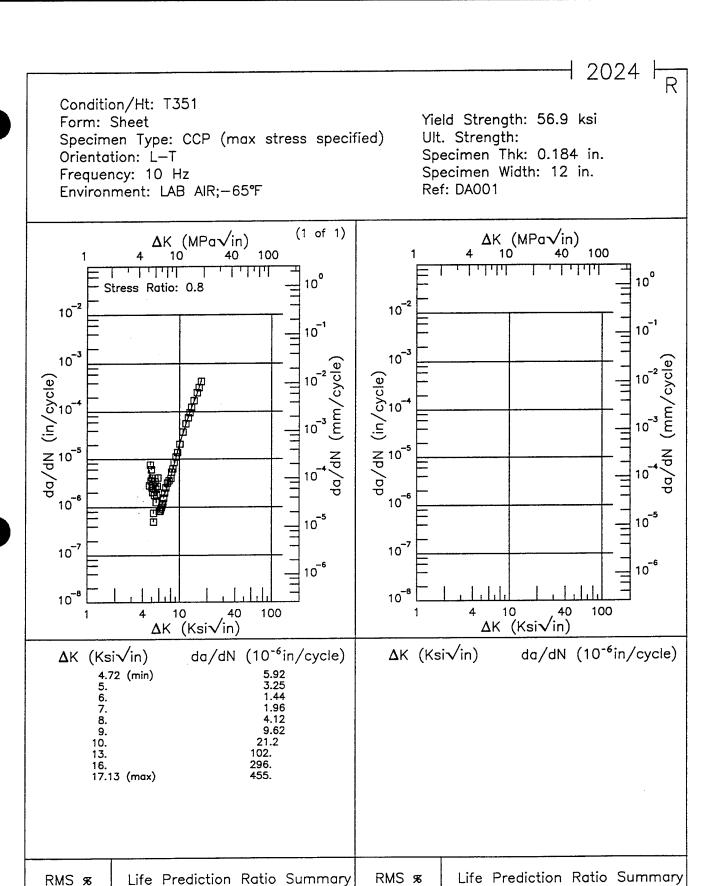


Figure 7.5.3.1.27

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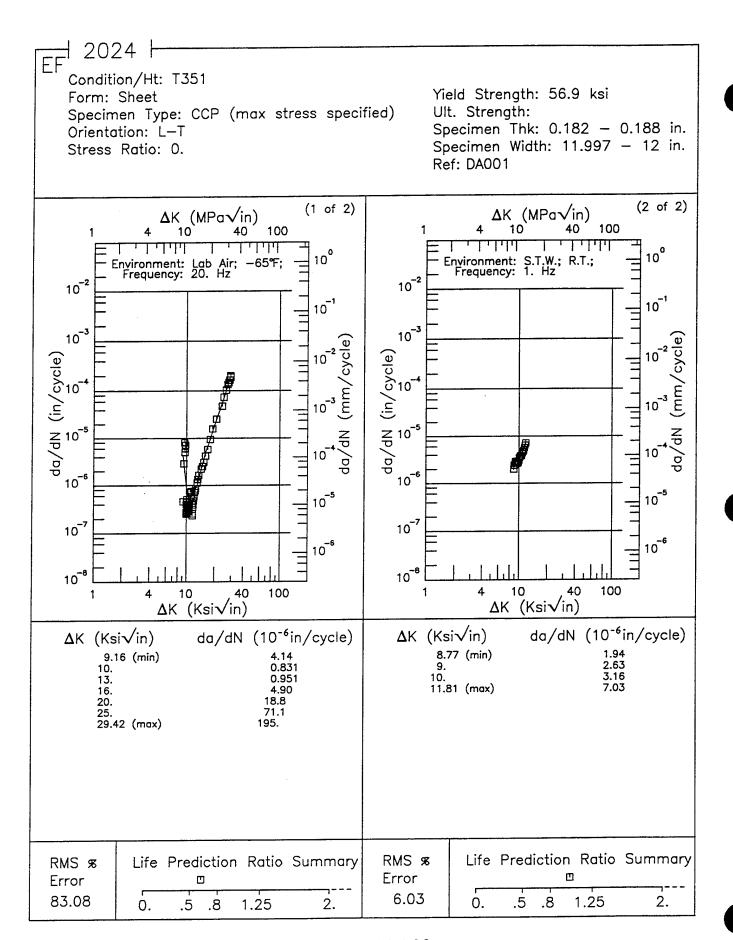


Figure 7.5.3.1.28

1 2024 |R Condition/Ht: T351 Yield Strength: 56.9 ksi Form: Sheet Specimen Type: CCP (max stress specified) Ult. Strength: Specimen Thk: 0.192 in. Orientation: L-T Specimen Width: 12 in. Frequency: 10 Hz Ref: DA001 Environment: S.T.W.; RT (1 of 1) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 10 40 100 10 100 10° 10° Stress Ratio: 0.33 10-2 10-2 10 -1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10 -5 10⁻⁵ 10⁻⁷ 10⁻⁷ 10⁻⁶ 10 6 10⁻⁸ 10 8 100 10 40 100 10 40 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) **Δ**K (Ksi√in) da/dN (10⁻⁶in/cycle) 18.6 25.6 48.4 11.68 (min) 13. 16. 20. 24.00 (max) 225. Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS & Error Error

Figure 7.5.3.1.29

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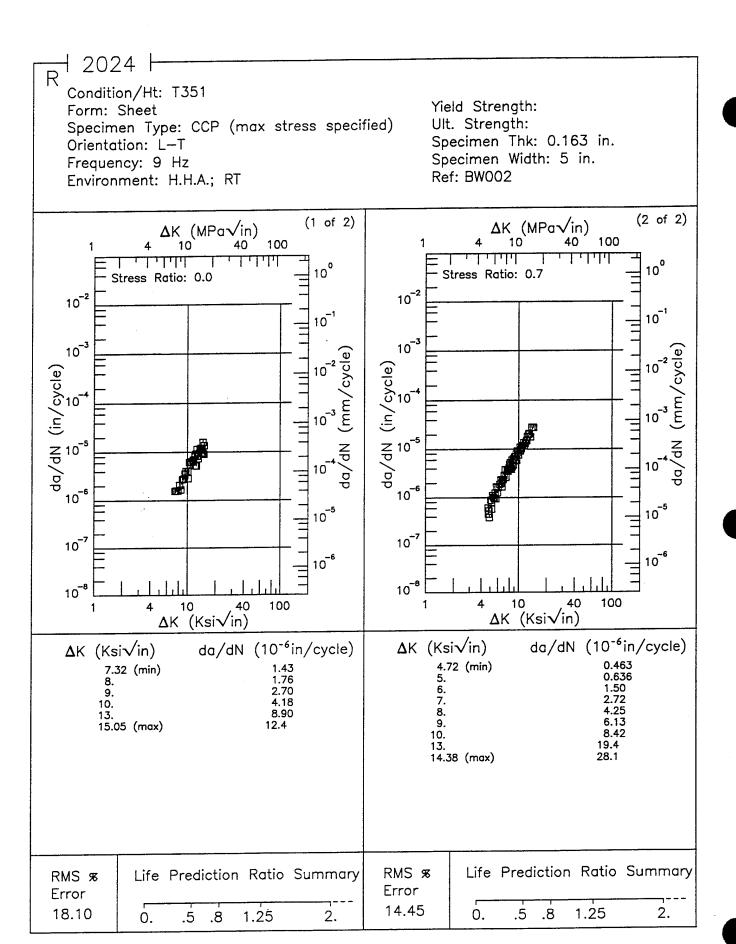


Figure 7.5.3.1.30

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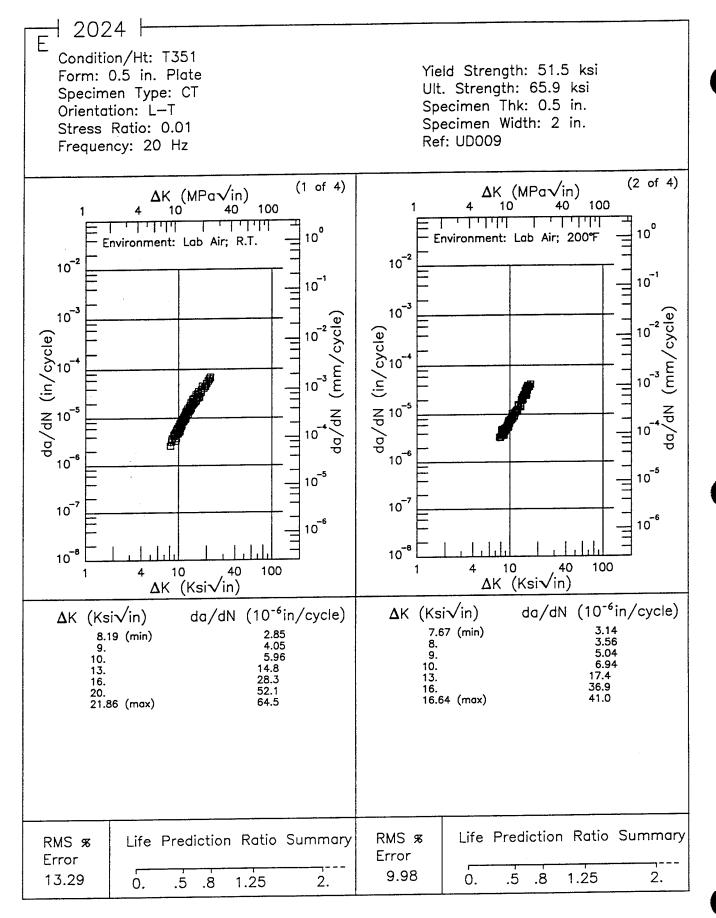


Figure 7.5.3.1.31

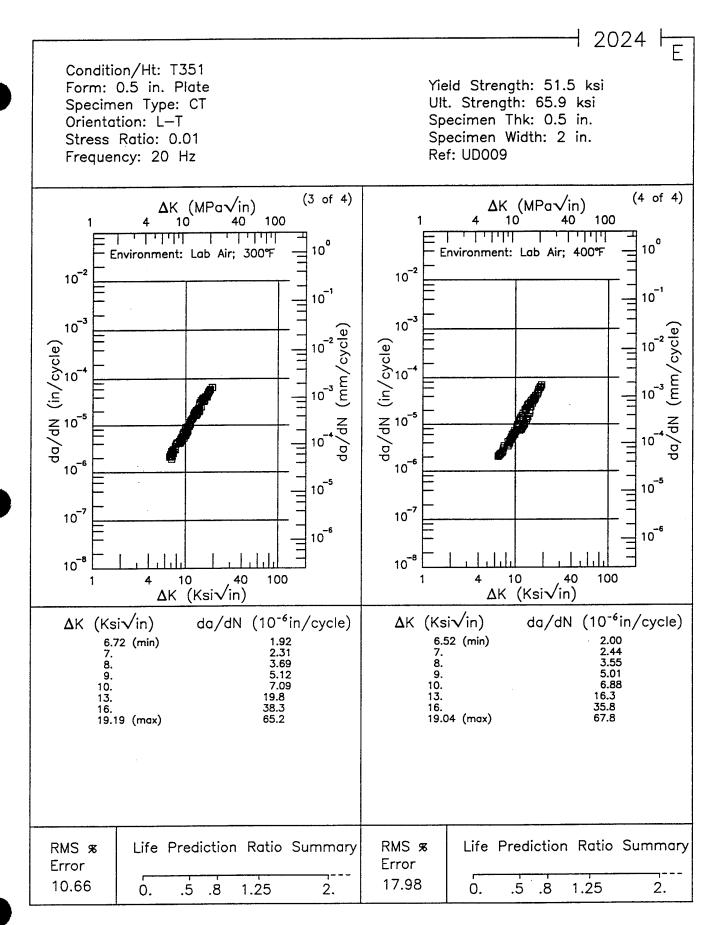


Figure 7.5.3.1.31 (Concluded)

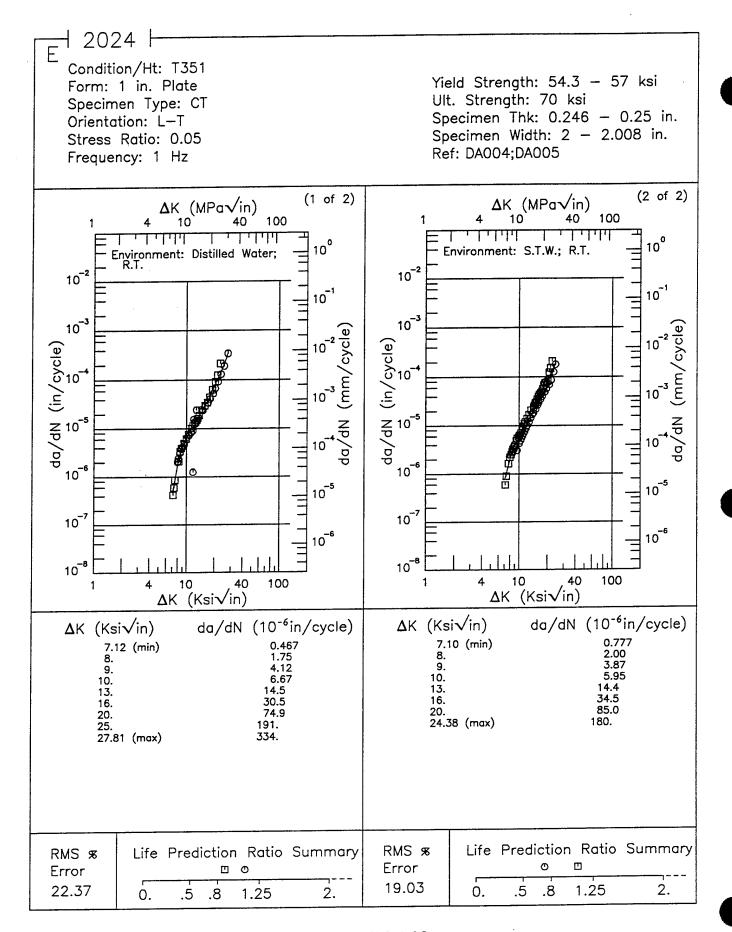


Figure 7.5.3.1.32

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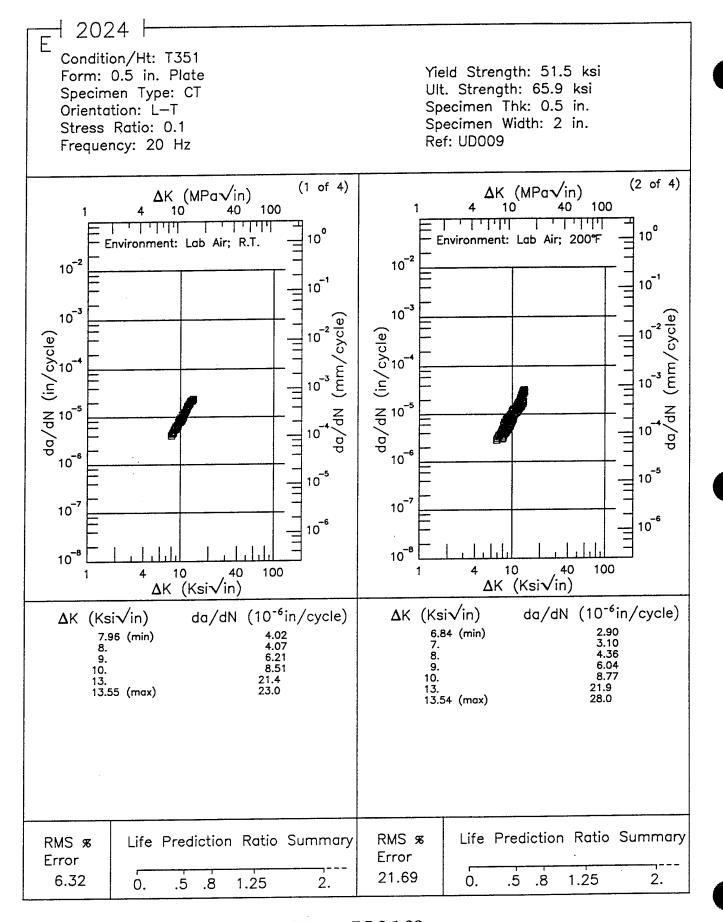


Figure 7.5.3.1.33

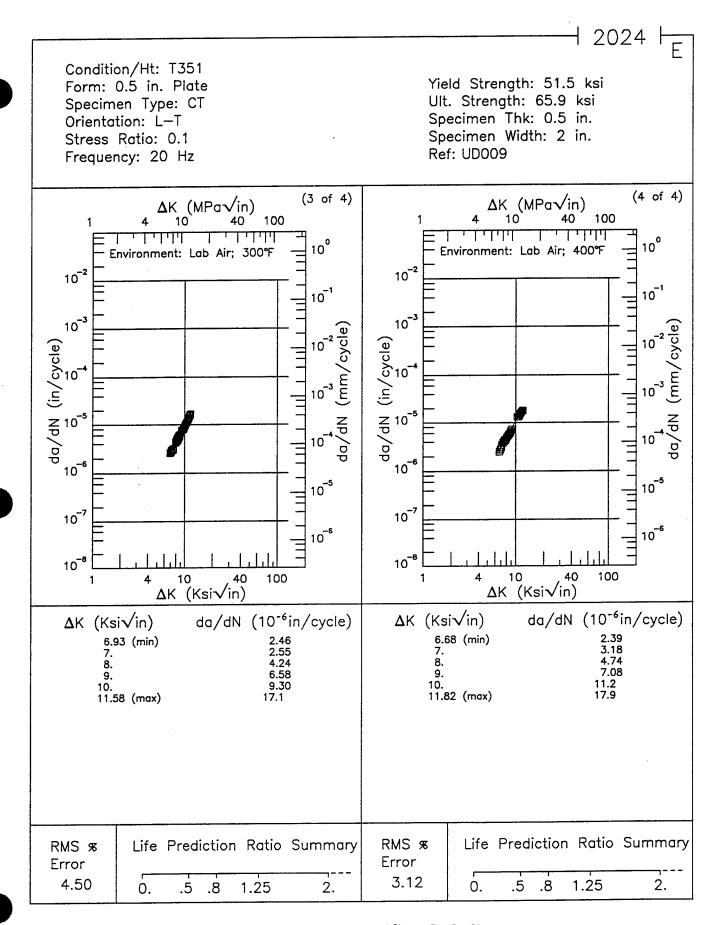


Figure 7.5.3.1.33 (Concluded)

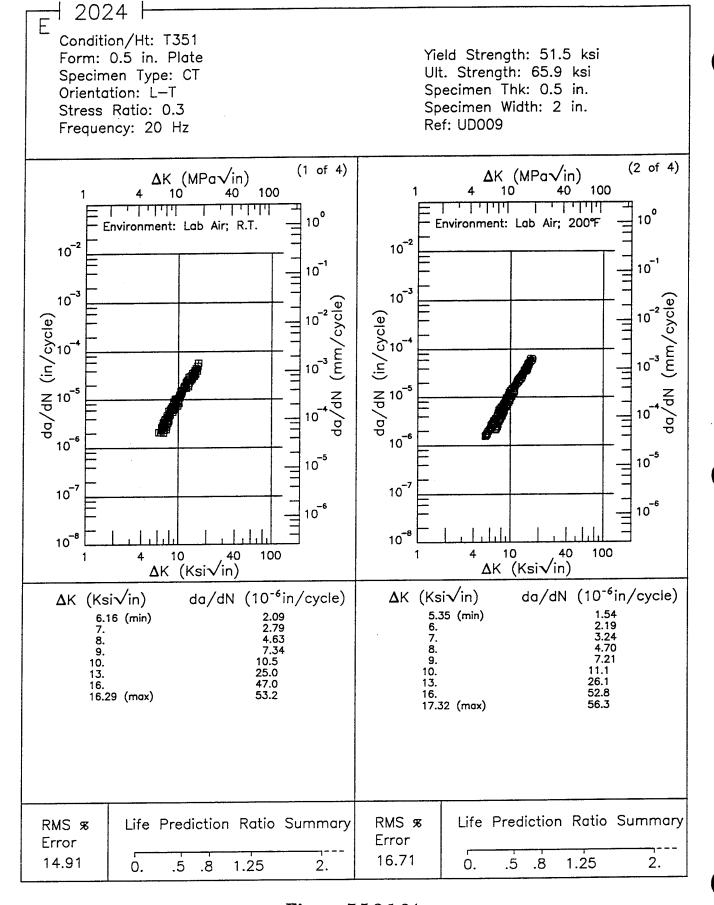


Figure 7.5.3.1.34

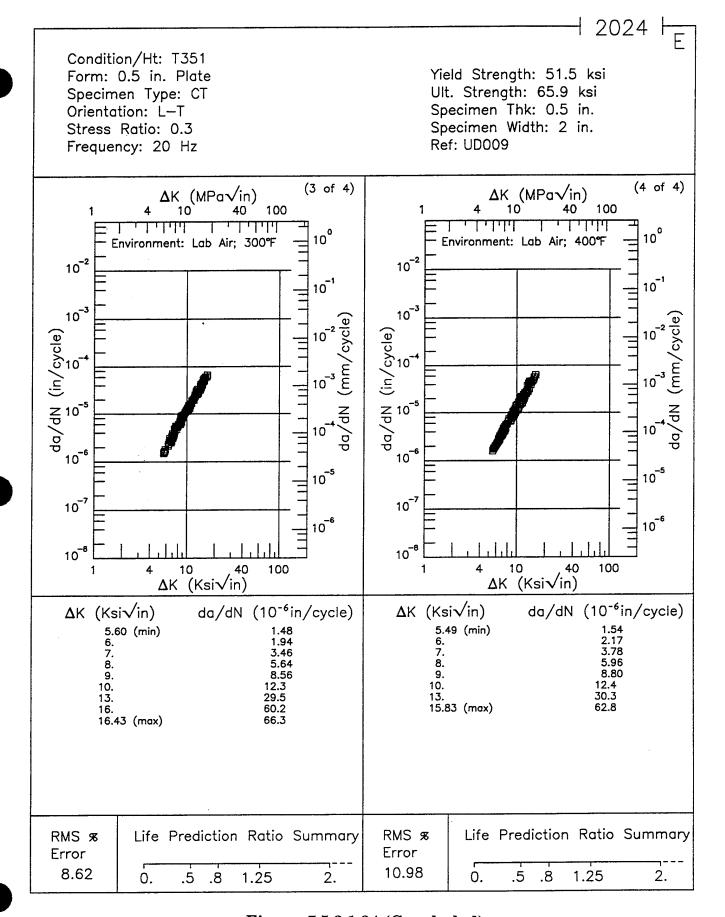


Figure 7.5.3.1.34 (Concluded)

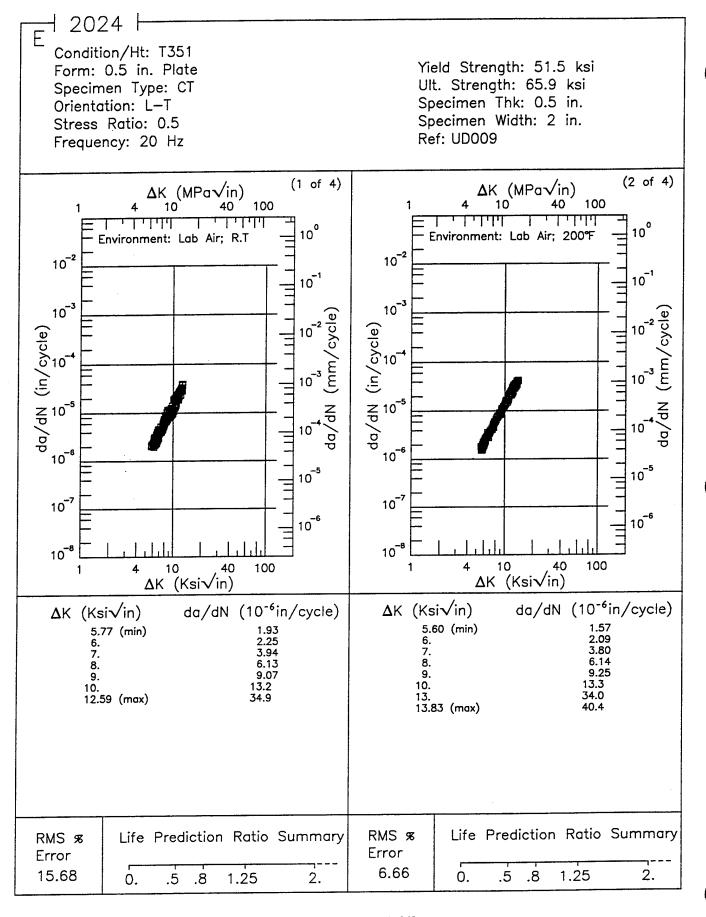


Figure 7.5.3.1.35

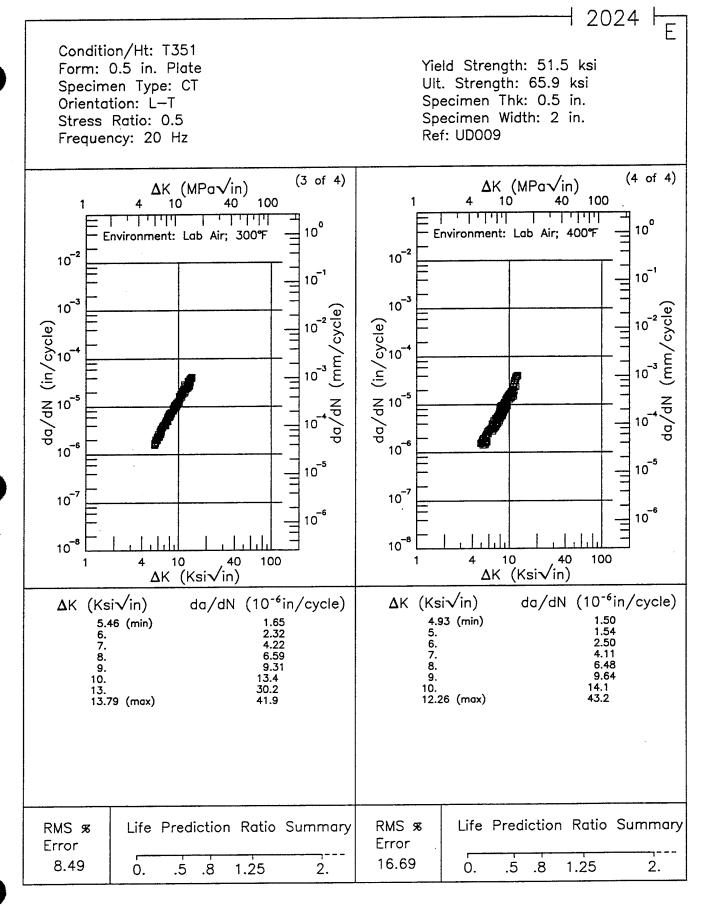


Figure 7.5.3.1.35 (Concluded)

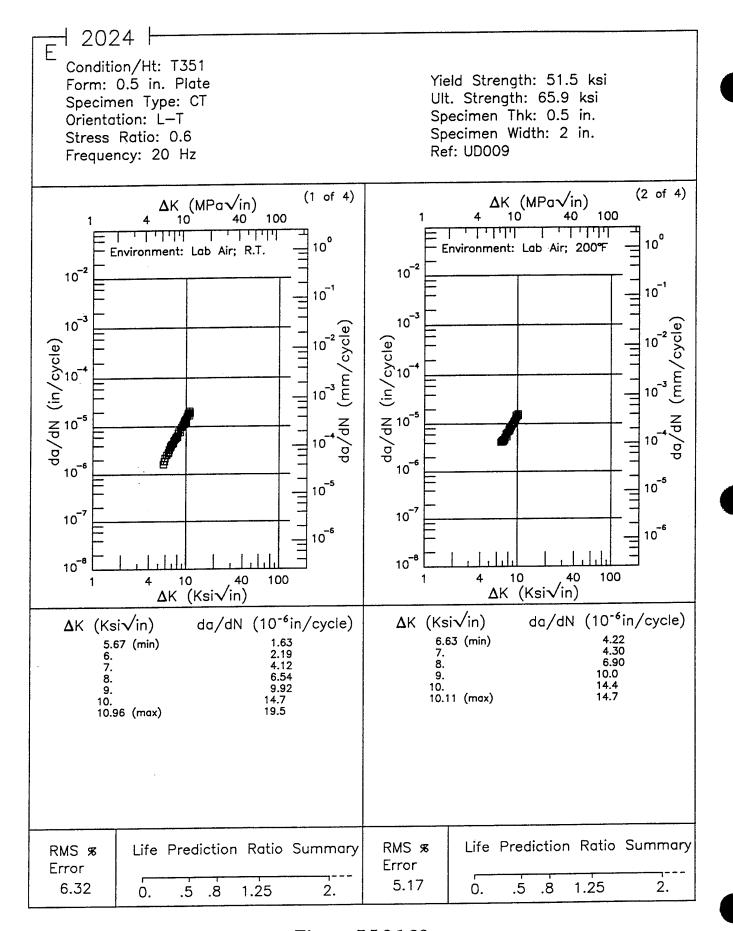


Figure 7.5.3.1.36

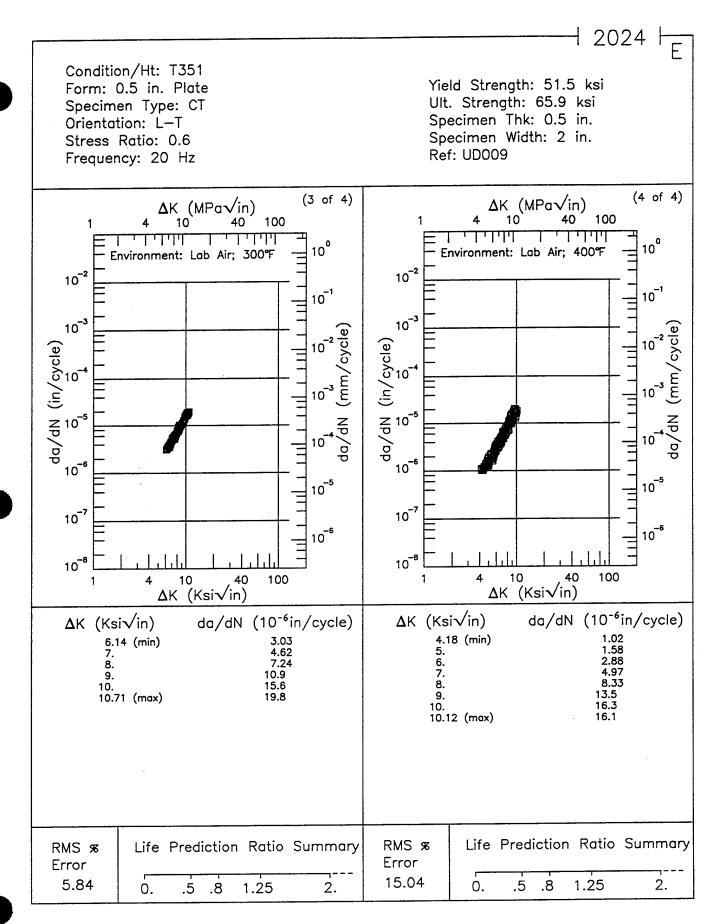


Figure 7.5.3.1.36 (Concluded)

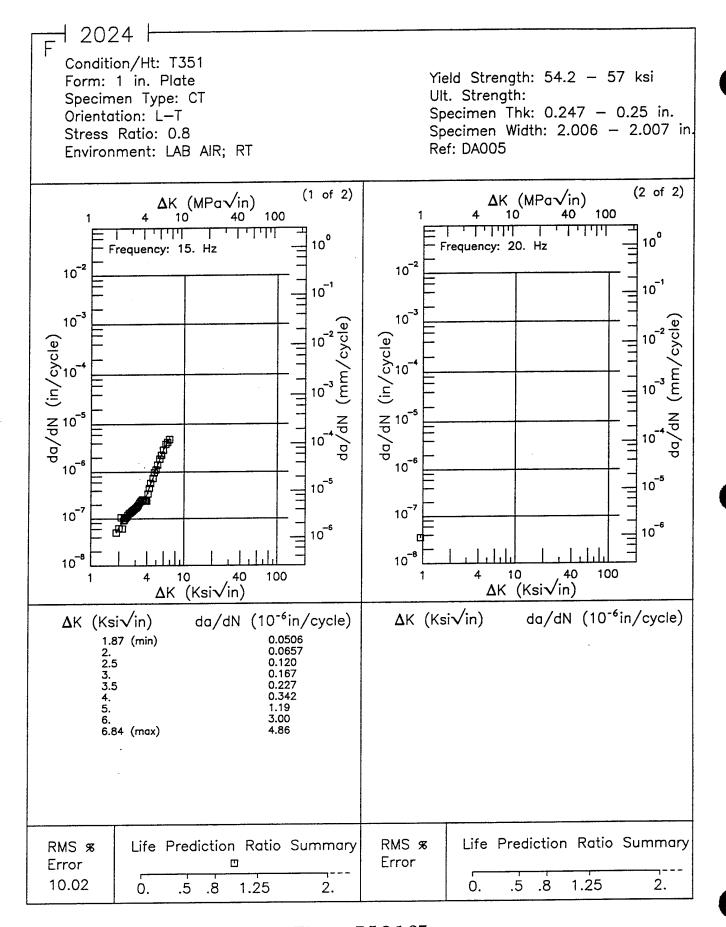


Figure 7.5.3.1.37

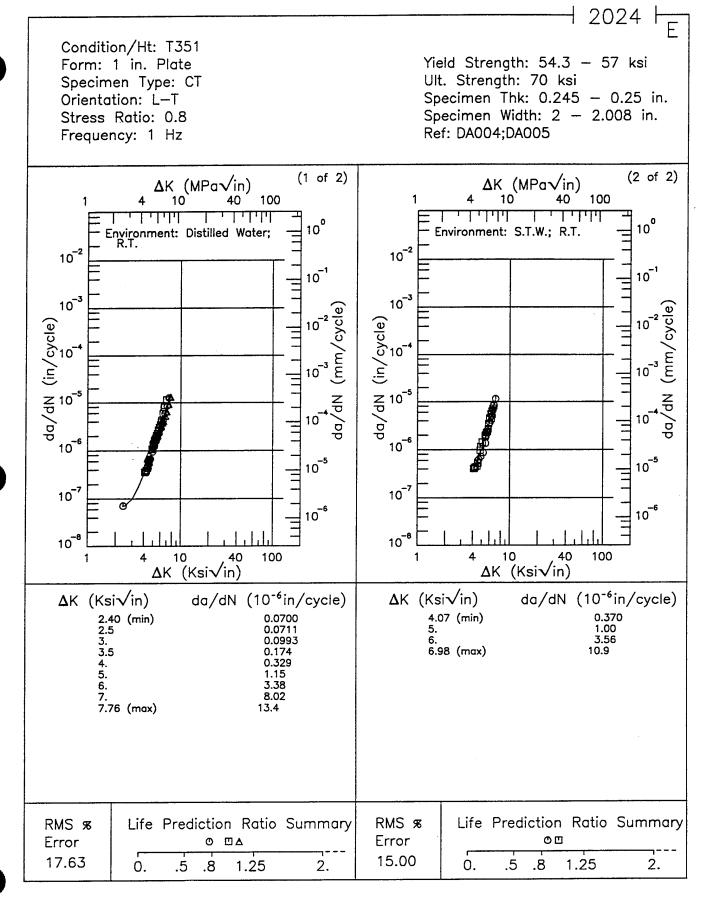


Figure 7.5.3.1.38

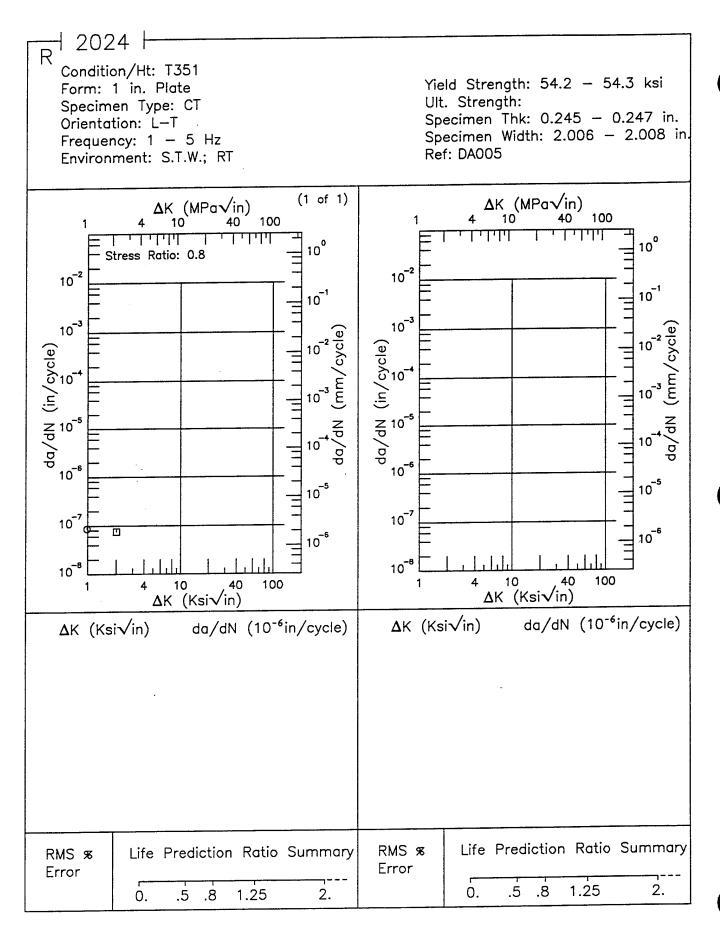


Figure 7.5.3.1.39

┨ 2024 ┠ Condition/Ht: T351 Yield Strength: 54.3 ksi Form: 1 in. Plate Ult. Strength: Specimen Type: CT Specimen Thk: 0.246 in. Orientation: L-T Specimen Width: 2.006 in. Frequency: 1 - 20 Hz Ref: DA005 Environment: LAB AIR; RT (1 of 1) Δ K (MPa \sqrt{in}) $\Delta K (MPa\sqrt{in})$ 10 100 100 40 10 40 $\frac{1}{1}$ اللبابا 10⁰ 10° Stress Ratio: 0.05 10-2 10-2 10-1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10⁻⁵ 10⁻⁵ 10⁻⁷ 10 10 6 10 6 10⁻⁸ 10-8 100 40 10 40 10 100 4 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error

Figure 7.5.3.1.40

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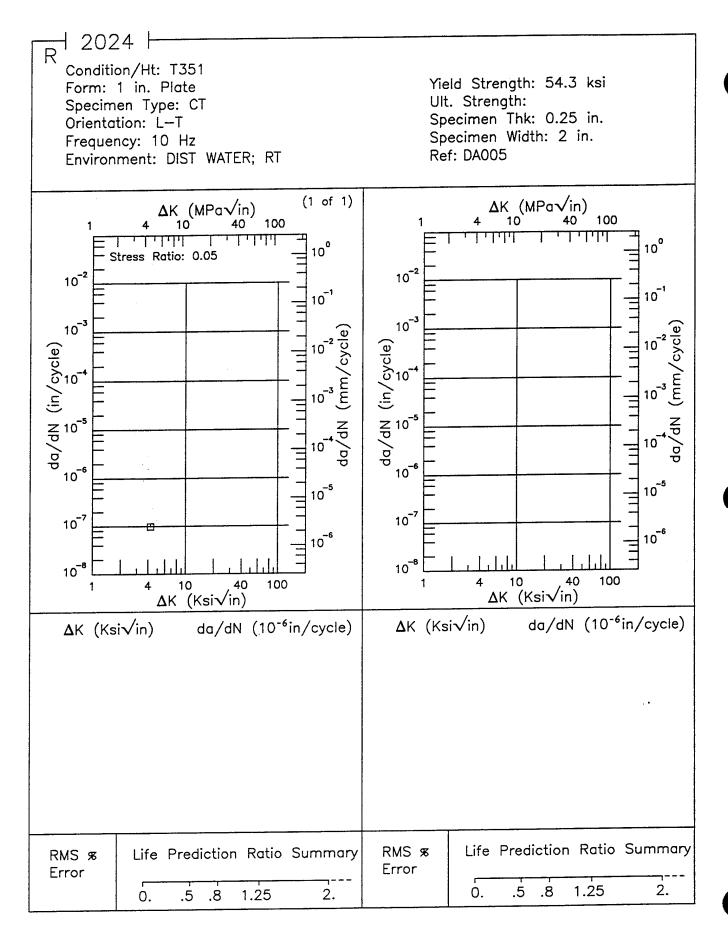


Figure 7.5.3.1.41

1 2024 | R Condition/Ht: T351 Form: 1 in. Plate Yield Strength: 54.3 ksi Ult. Strength: Specimen Type: CT Orientation: L-T Specimen Thk: 0.246 in. Specimen Width: 2.006 in. Frequency: 1 - 5 Hz Environment: S.T.W.; RT Ref: DA005 (1 of 1) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 100 100 7777 10° Stress Ratio: 0.05 10-2 10-2 10 1 10-1 10⁻³ 10⁻³ 10 20 / Cycle) da/dN (in/cycle) da/dN (in/cycle) 10 10⁻⁶ 10-6 10⁻⁵ 10⁻⁵ 10⁻⁷ 10⁻⁷ \Box 10 6 10-6 10⁻⁸ 10⁻⁸ 40 40 100 10 100 10 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN ($10^{-6}in/cycle$) ΔK (Ksi√in) Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error Ò. .5 1.25 2. 0. .5 .8 1.25 2. .8

Figure 7.5.3.1.42

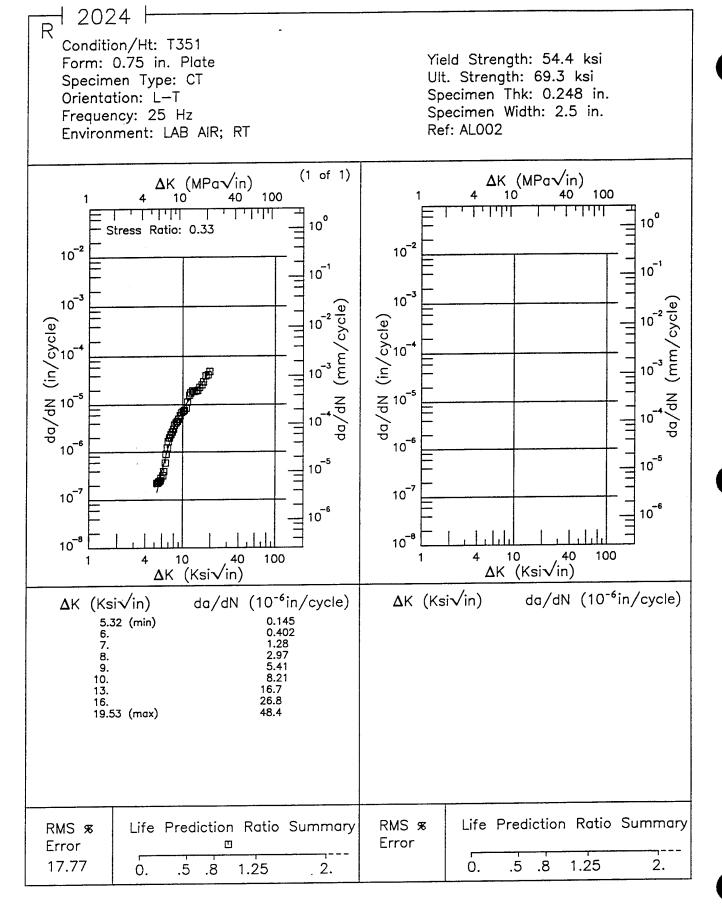


Figure 7.5.3.1.43

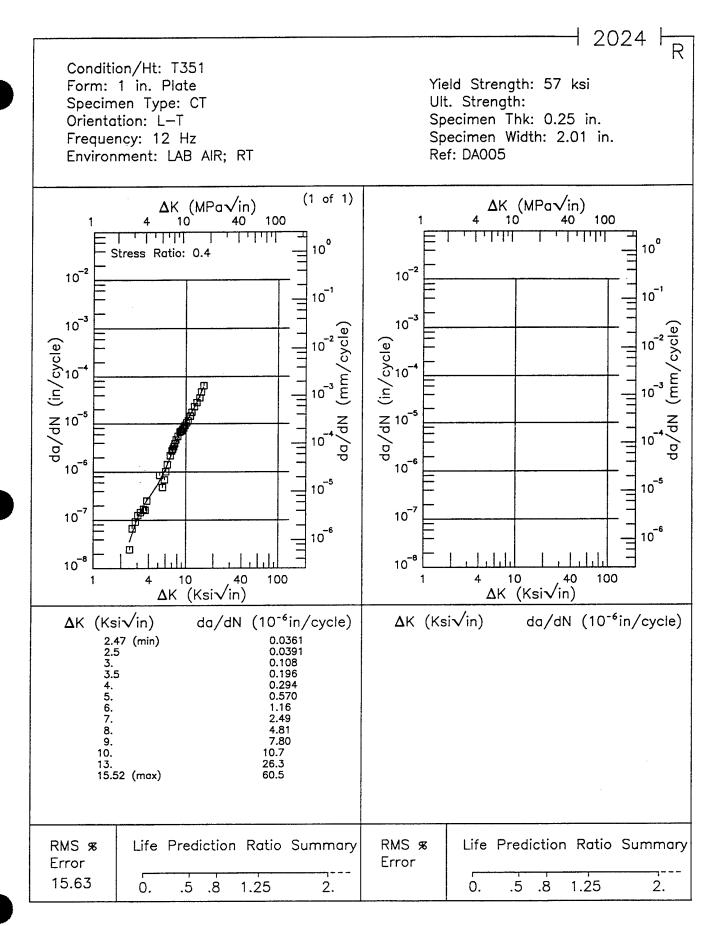


Figure 7.5.3.1.44

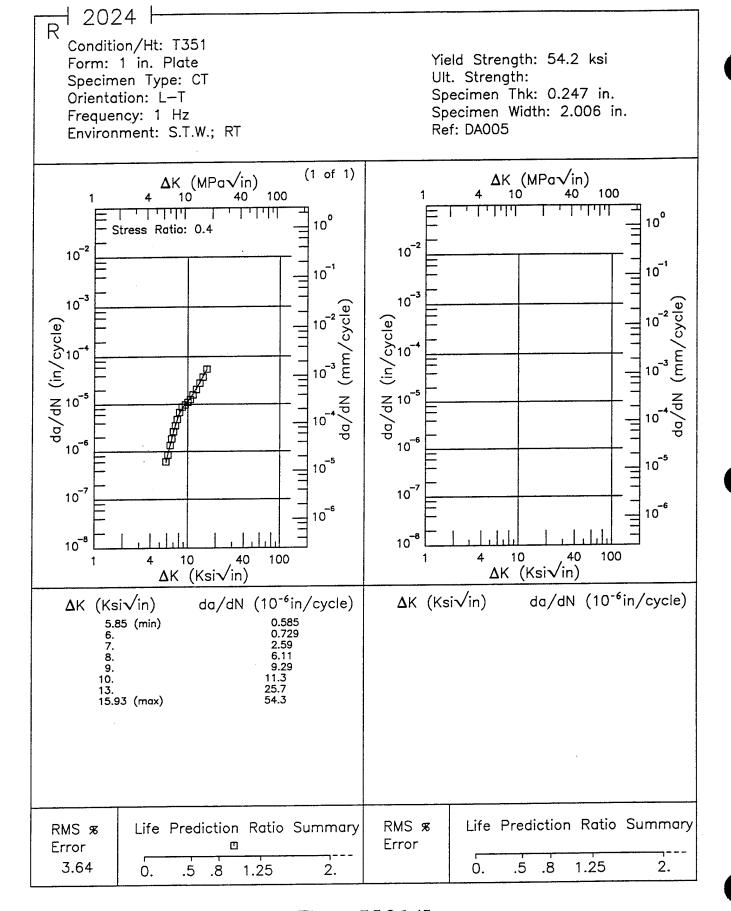


Figure 7.5.3.1.45

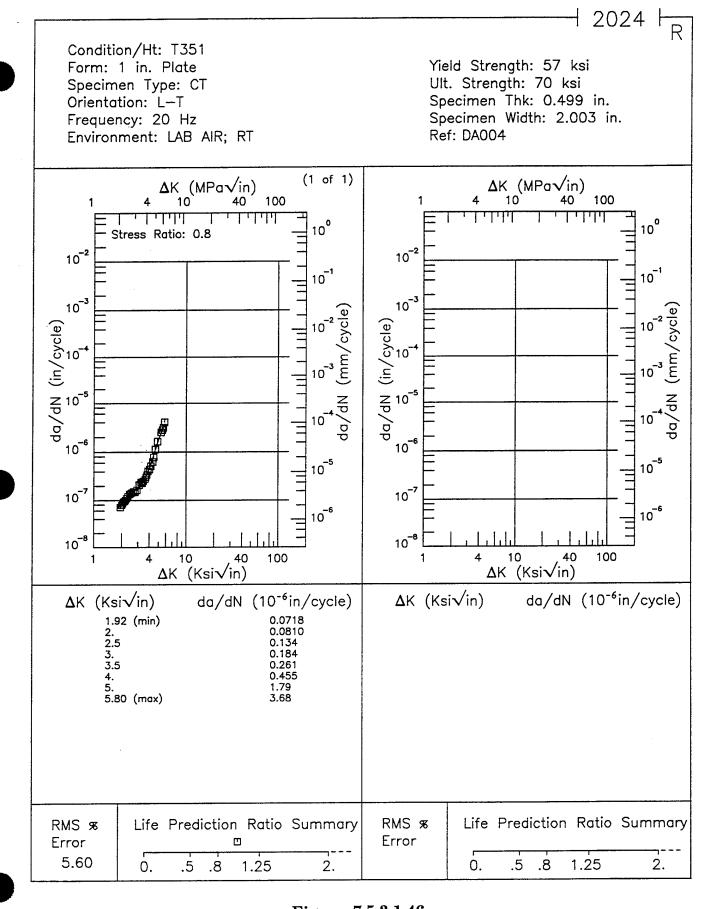


Figure 7.5.3.1.46

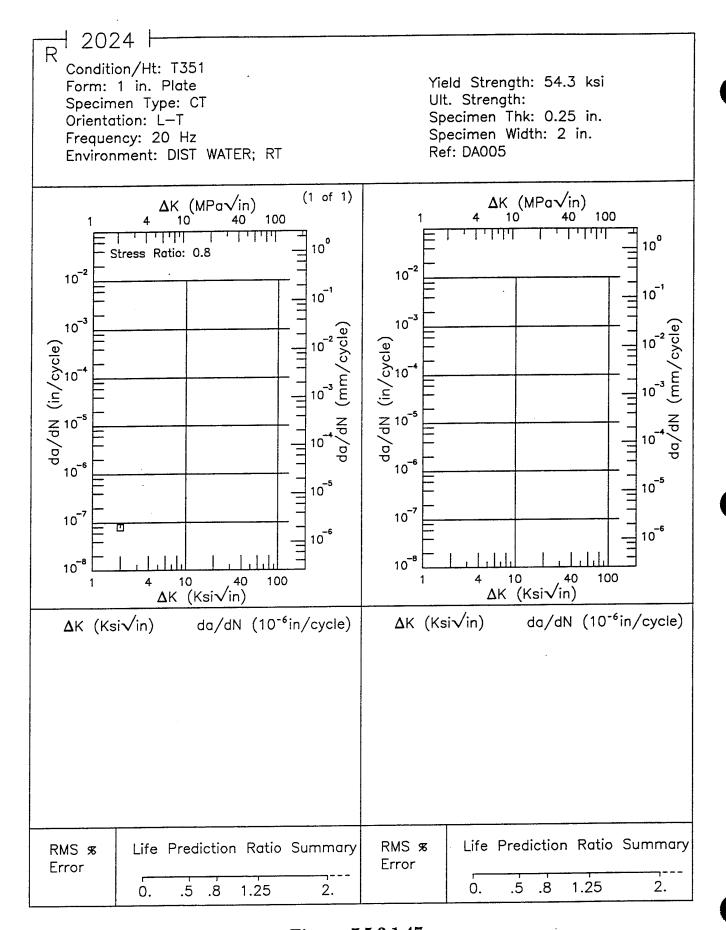


Figure 7.5.3.1.47

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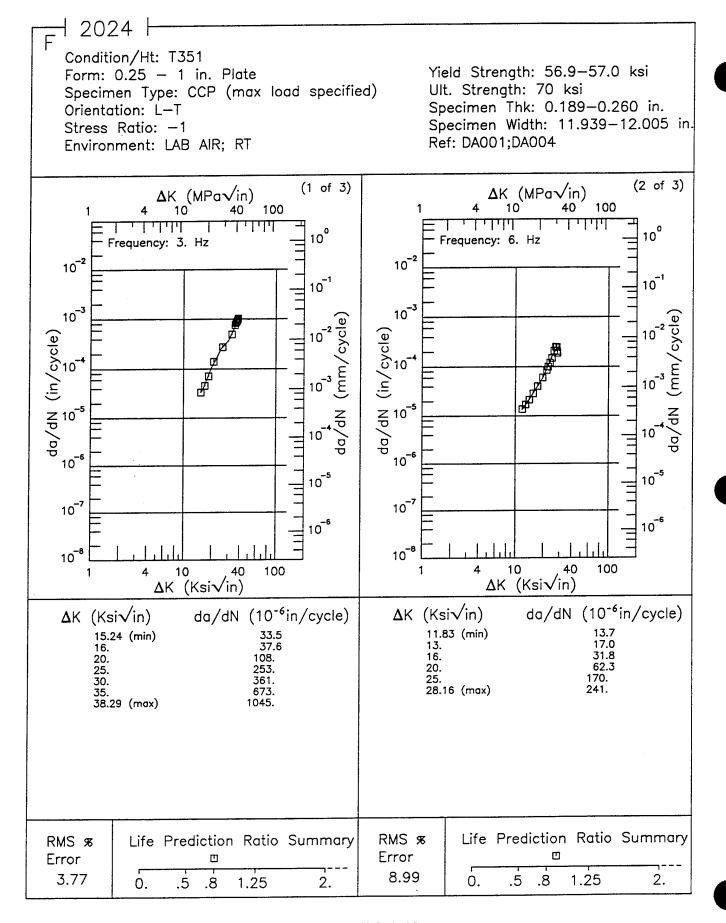


Figure 7.5.3.1.48

Condition/Ht: T351
Form: 0.25 - 1 in. Plate
Specimen Type: CCP (max load specified)
Orientation: L-T
Stress Ratio: -1
Environment: LAB AIR; RT

Syecimen Type: CCP (max load specified)

Orientation: L-T
Stress Ratio: -1
Environment: LAB AIR; RT

AK (MPa√in)

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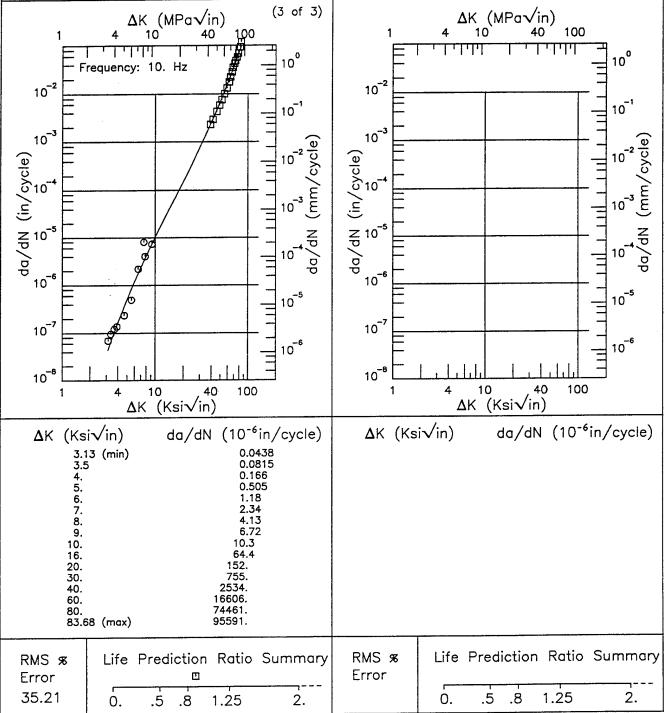


Figure 7.5.3.1.48 (Concluded)

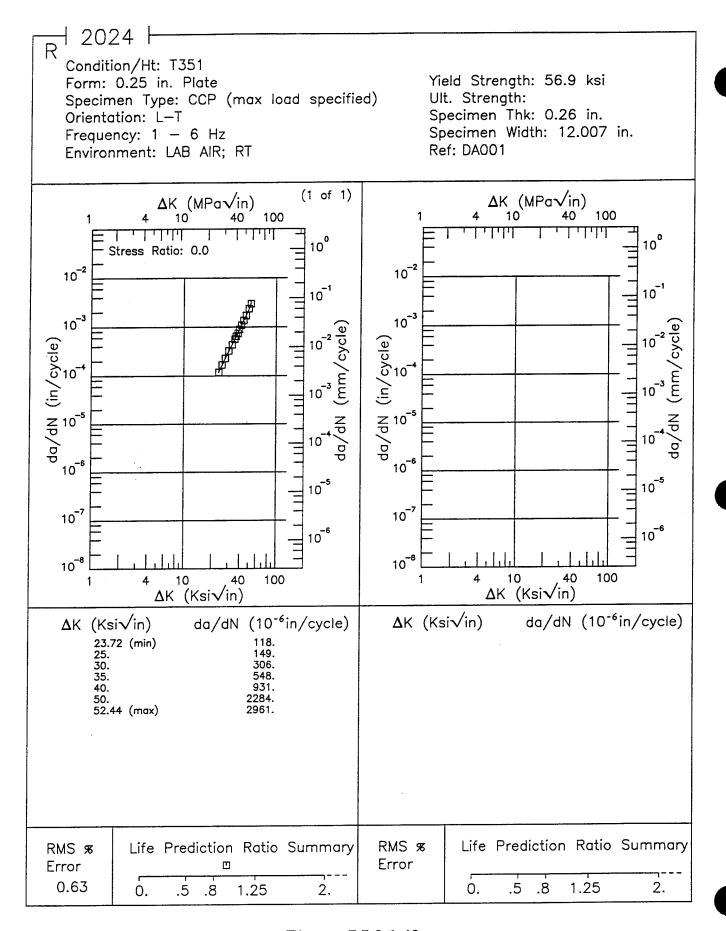


Figure 7.5.3.1.49

1 2024 | R

Condition/Ht: T351 Form: 0.25 in. Plate

Specimen Type: CCP (max load specified)

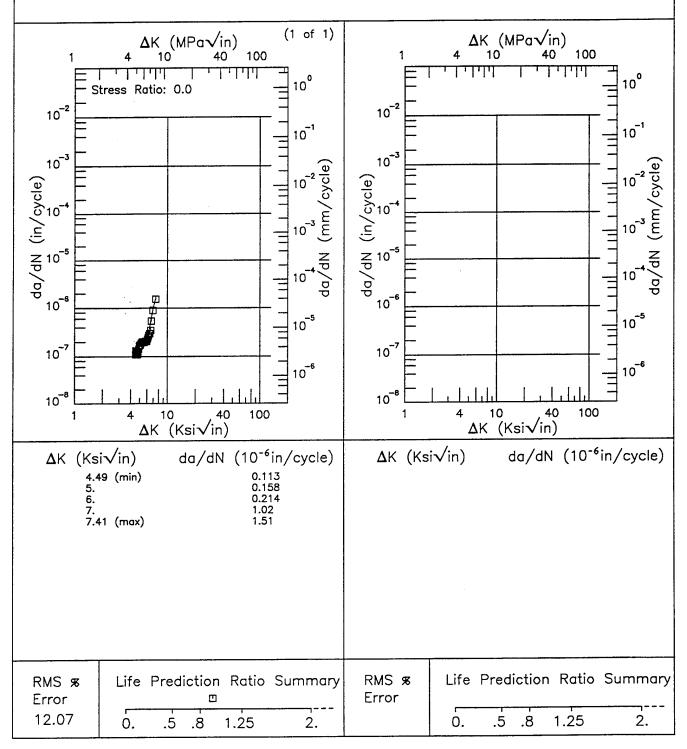
Orientation: L-T

Frequency: 10 - 20 Hz Environment: LAB AIR; RT Yield Strength: 56.9 ksi

Ult. Strength:

Specimen Thk: 0.192 in. Specimen Width: 4.003 in.

Ref: DA001



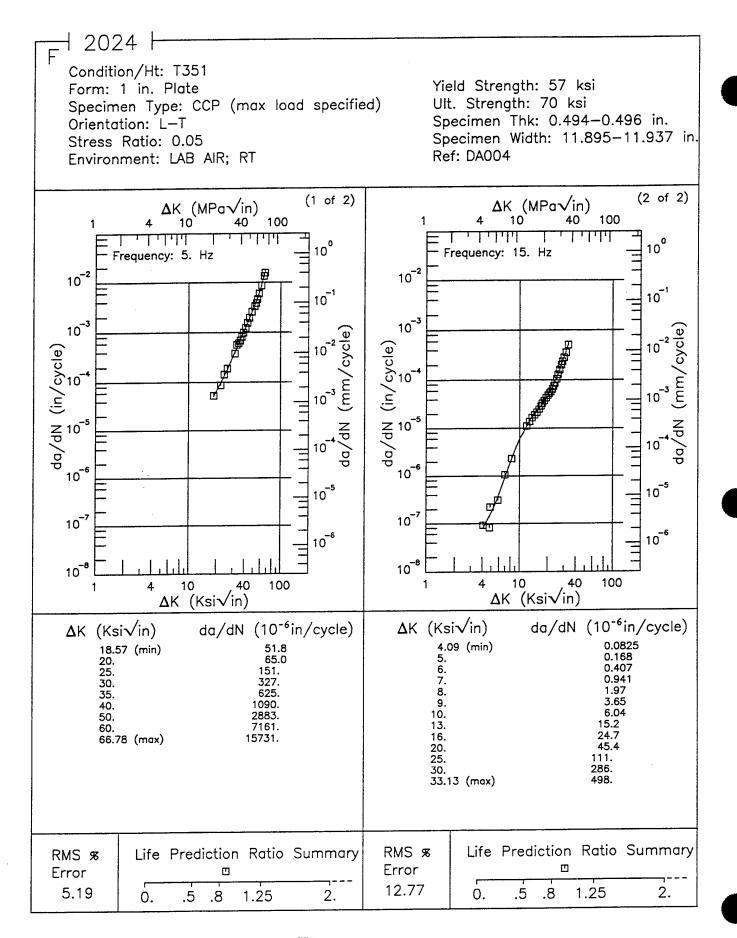


Figure 7.5.3.1.51



Condition/Ht: T351 Form: 1 in. Plate

Specimen Type: CCP (max load specified)

Orientation: L—T Stress Ratio: 0.05

Environment: LAB AIR; RT

Yield Strength: 54.3-57.0 ksi

Ult. Strength: 70 ksi

Specimen Thk: 0.199-0.201 in. Specimen Width: 11.895-12.014 in.

Ref: DA004; DA005

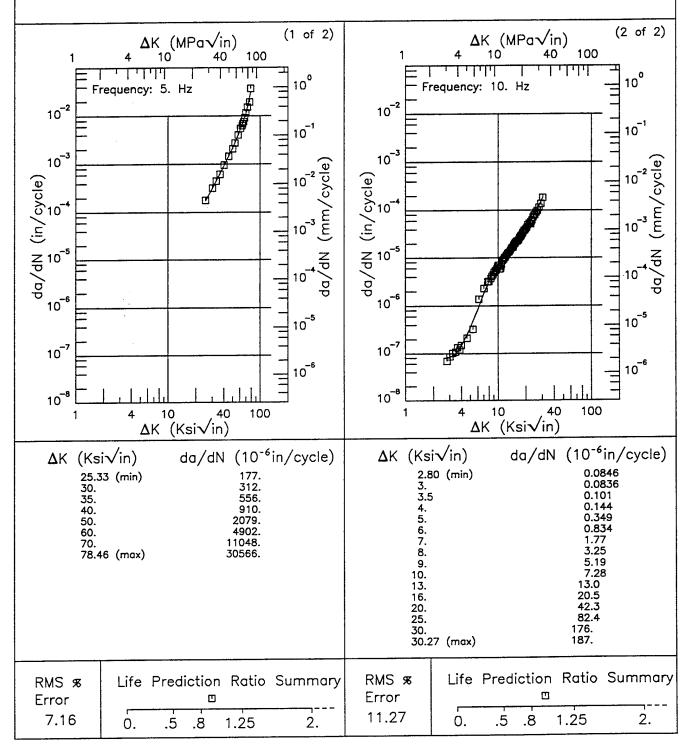


Figure 7.5.3.1.52

2024 H Condition/Ht: T351 Yield Strength: 56.9-57.0 ksi Form: 0.25 - 1 in. Plate Specimen Type: CCP (max load specified) Ult. Strength: 70 ksi Specimen Thk: 0.197-0.261 in. Orientation: L-T Specimen Width: 11.880-12.007 in. Stress Ratio: 0.4 Ref: DA001;DA004 Environment: LAB AIR; RT (2 of 2) (1 of 2) Δ K (MPa \sqrt{in}) ∆K (MPa√in) 10 100 40 10 40 100 1 1 1 1 1 1 1 1 11111 10° <u> 1111</u> 10° Frequency: 10. Hz Frequency: 3. Hz 10⁻² 10-2 10 -1 10 10⁻³ 10⁻³ da/dN (in/cycle) 10-2 da/dN (in/cycle) 10⁻³ 10⁻⁶ 10-6 10⁻⁵ 10 -5 10⁻⁷ 10⁻⁷ 10 6 10 -6 10⁻⁸ 10⁻⁸ 40 100 10 40 100 10 ΔK (Ksi√in) ∆K (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 2.57 (min) 3. 3.5 0.0539 0.0938 10.67 (min) 13. 16. 67.9 4. 5. 6. 7. 8. 242. 20. 22.69 (max) 433. 9. 10. 16. 20. 30. 40. 53.56 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS %

Figure 7.5.3.1.53

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1 2024 R

Condition/Ht: T351 Form: 0.25 in. Plate

Specimen Type: CCP (max load specified)

Orientation: L-T

Frequency: 5 - 10 Hz Environment: LAB AIR; RT Yield Strength: 56.9 ksi

Ult. Strength:

Specimen Thk: 0.188 — 0.19 in. Specimen Width: 3.999 — 4.002 in

Ref: DA001

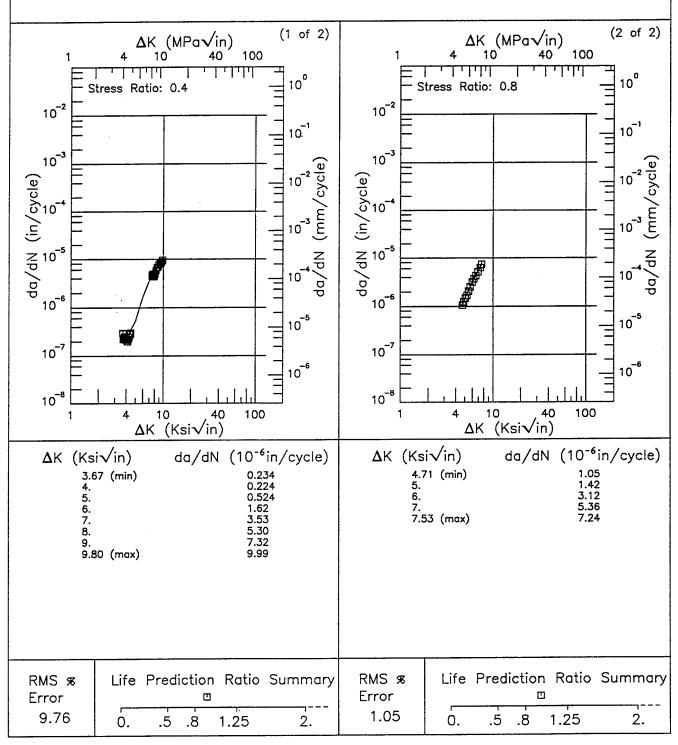


Figure 7.5.3.1.54

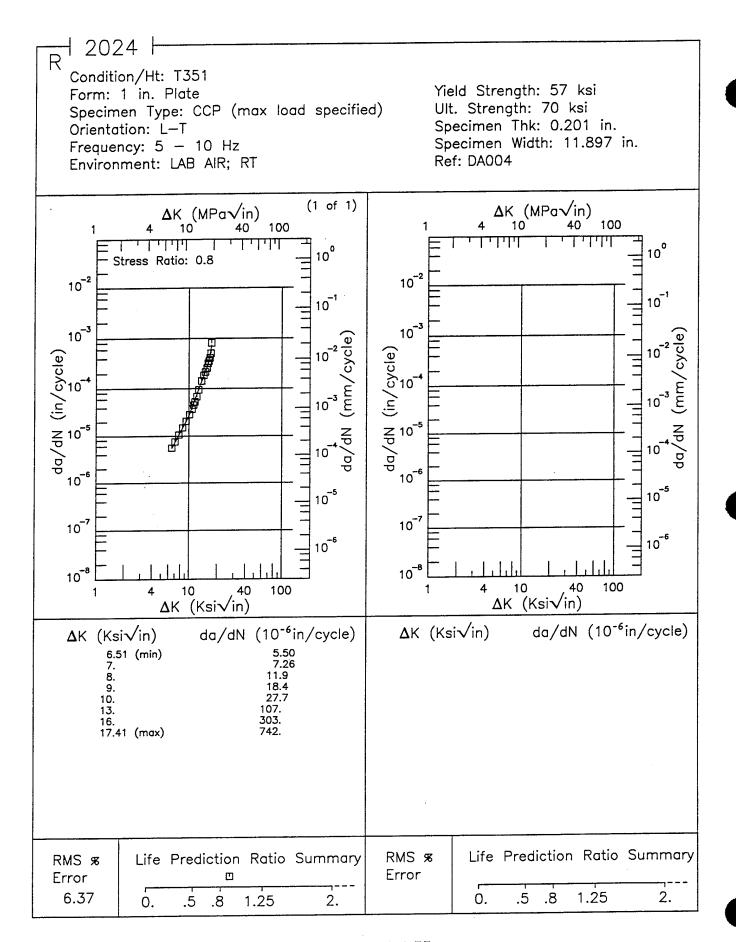


Figure 7.5.3.1.55

Condition/Ht: T351 Yield Strength: 56.9 ksi Form: 0.25 in. Plate Specimen Type: CCP (max load specified) Ult. Strength: Specimen Thk: 0.26 in. Orientation: L-T Specimen Width: 12.007 in. Frequency: 3 - 16 Hz Ref: DA001 Environment: LAB AIR; RT (1 of 1) $\Delta K (MPa\sqrt{in})$ Δ K (MPa \sqrt{in}) 100 100 لبليليك 10° 10° Stress Ratio: 0.8 10-2 10-2 10 1 10 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10 -2 10-6 10-6 10 5 10⁻⁵ 10⁻⁷ 10⁻⁷ 10⁻⁶ 10 6 10 8 10-8 40 100 10 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) 2.56 4.19 8.87 5.32 (min) 6. 7. 8. 9. 10. 263. 268. 14.31 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 7.44 0. .5 8. 1.25 2. Ó. .5 8. 1.25 2.

┨ 2024 Ҕ

Figure 7.5.3.1.56

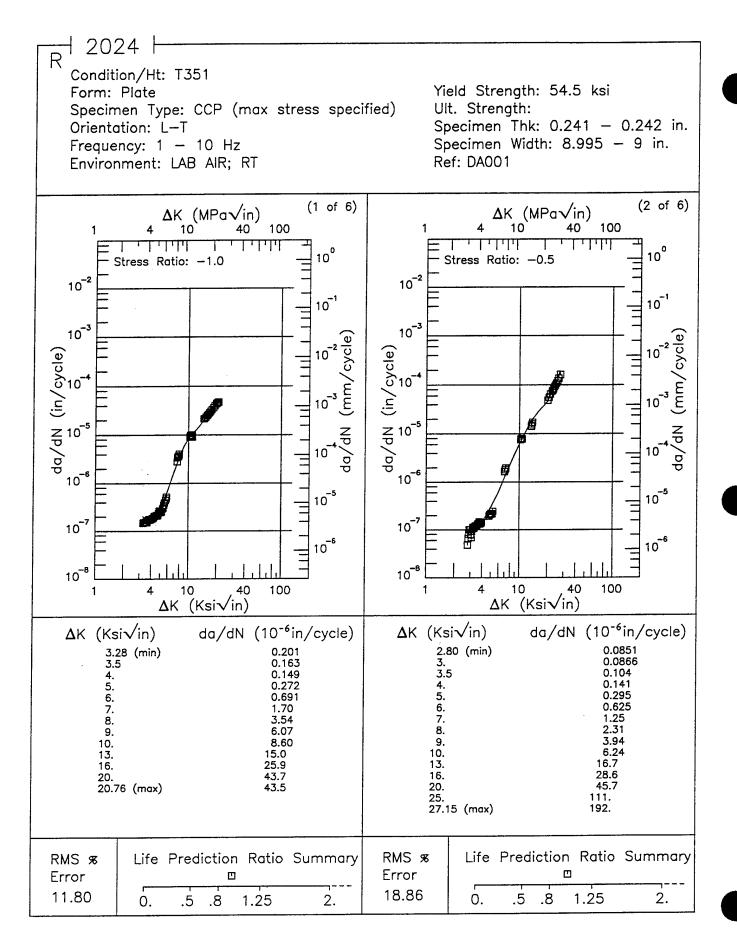


Figure 7.5.3.1.57

Condition/Ht: T351 Form: Plate Yield Strength: 54.5 ksi . Ult. Strength: Specimen Type: CCP (max stress specified) Specimen Thk: 0.241 - 0.242 in. Orientation: L-T Specimen Width: 8.995 - 9 in. Frequency: 1 - 10 Hz Environment: LAB AIR; RT Ref: DA001 (4 of 6)(3 of 6) $\Delta K (MPa\sqrt{in})$ Δ K (MPa \sqrt{in}) 100 10 100 40 <u>. 1.1.111</u> لللثاث 1.111110⁰ 10° Stress Ratio: 0.4 Stress Ratio: 0.01 10-2 10-2 10-1 10 10⁻³ 10⁻³ 10-2 da/dN (in/cycle) da/dN (in/cycle) 10 -3 10⁻⁶ 10⁻⁶ 10 -5 10⁻⁵ 10⁻⁷ 10-7 10 6 10 6 10⁻⁸ 10 8 40 100 10 100 10 40 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) 4.49 (min) 5. 6. 7. 0.169 0.176 0.108 3.27 (min) 0.219 4. 5. 6. 7. 8. 0.632 9. 10. 9. 13. 10. 16. 13. 20. 25. 30. 16. 17.04 (max) 193. 373. 39.11 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 6.97 38.30 1.25 2. 0. .5 1.25 2. 0. .5 .8 .8

┨ 2024 ┠

Figure 7.5.3.1.57 (Continued)

1 2024 H Condition/Ht: T351 Yield Strength: 54.5 ksi Form: Plate Specimen Type: CCP (max stress specified) Ult. Strength: Specimen Thk: 0.241 - 0.242 in. Orientation: L-T Specimen Width: 8.995 - 9 in. Frequency: 1 - 10 Hz Ref: DA001 Environment: LAB AIR; RT (6 of 6) (5 of 6) ∆K (MPa√in) Δ K (MPa \sqrt{in}) 10 40 100 100 10 40 1 | 1 | 1 | 1 111111 10° 7 1 1 1 1 1 1 10° Stress Ratio: 0.8 Stress Ratio: 0.6 10⁻² 10-2 10 -1 10-1 10⁻³ 10⁻³ 10 -2 da/dN (in/cycle) da/dN (in/cycle) b 0, 0, 10⁻³ 10-1 10⁻⁶ 10⁻⁶ 10 -5 10 -5 10⁻⁷ 10⁻⁷ 10⁻⁶ 10⁻⁶ 10⁻⁸ 10-8 10 40 100 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) **Δ**K (Ksi√in) $da/dN (10^{-6}in/cycle)$ **Δ**K (Ksi√in) 3.34 (min) 3.5 0.314 3.15 (min) 3.5 0.142 4. 5. 4. 5. 6. 7. 8. 9. 6. 7. 8. 9. 10. 35.4 76.1 169. 13. 14.85 (max) 313. 164. 18.46 (max) Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error 4.31

Figure 7.5.3.1.57 (Concluded)

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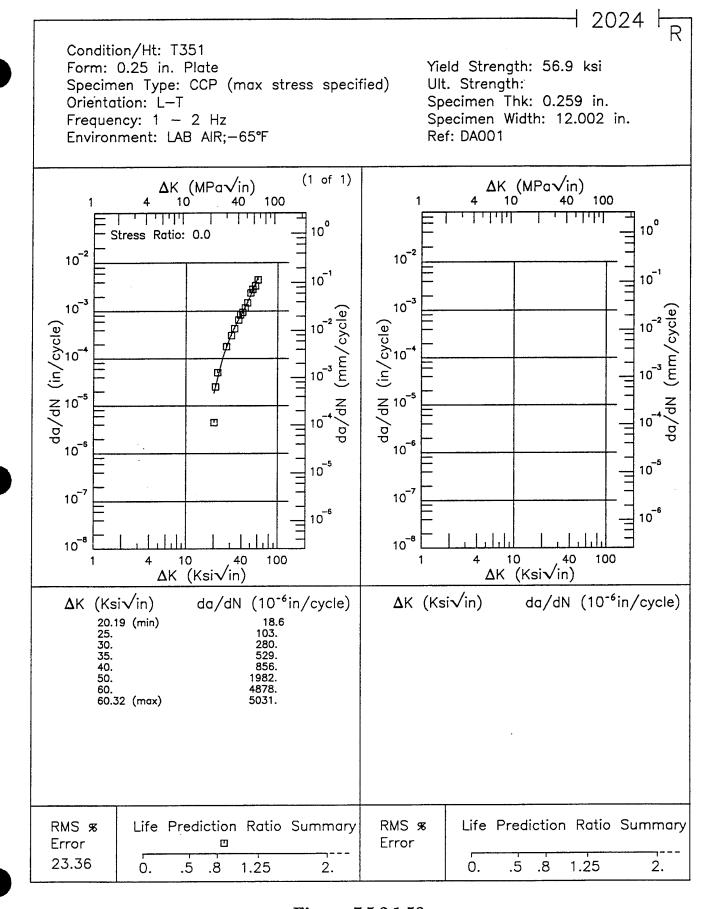


Figure 7.5.3.1.58

2024 Condition/Ht: T351 Yield Strength: Form: 0.25 in. Plate Specimen Type: CCP (max stress specified) Ult. Strength: Specimen Thk: 0.25 in. Orientation: L-T Specimen Width: 5 in. Frequency: 3 Hz Ref: FR001 Environment: LAB AIR; RT (1 of 1)ΔK (MPa√in) 10 40 Δ K (MPa \sqrt{in}) 100 10 40 7777 10° 11111 10° Stress Ratio: 0.1 10-2 10-2 10-1 10⁻¹. 10⁻³ 10⁻³ 10⁻² da/dN (in/cycle) da/dN (in/cycle) 10-3 10 10⁻⁶ 10⁻⁶ 10_5 10⁻⁵ 10⁻⁷ 10⁻⁷ 10⁻⁶ 10 -6 10⁻⁸ 10 8 100 40 100 10 40 10 ΔK (Ksi√in) ΔK (Ksi√in) Δ K (Ksi \sqrt{in}) da/dN ($10^{-6}in/cycle$) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 12.37 (min) 17.5 29.5 13. 16. 55.0 24.93 (max) 209. Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error

Figure 7.5.3.1.59

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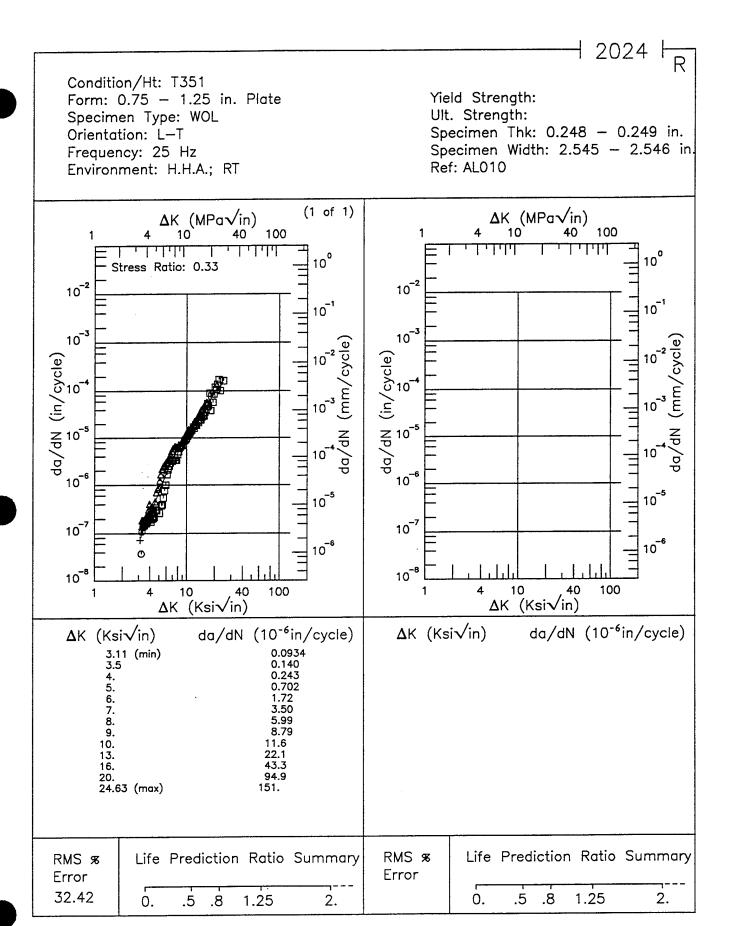
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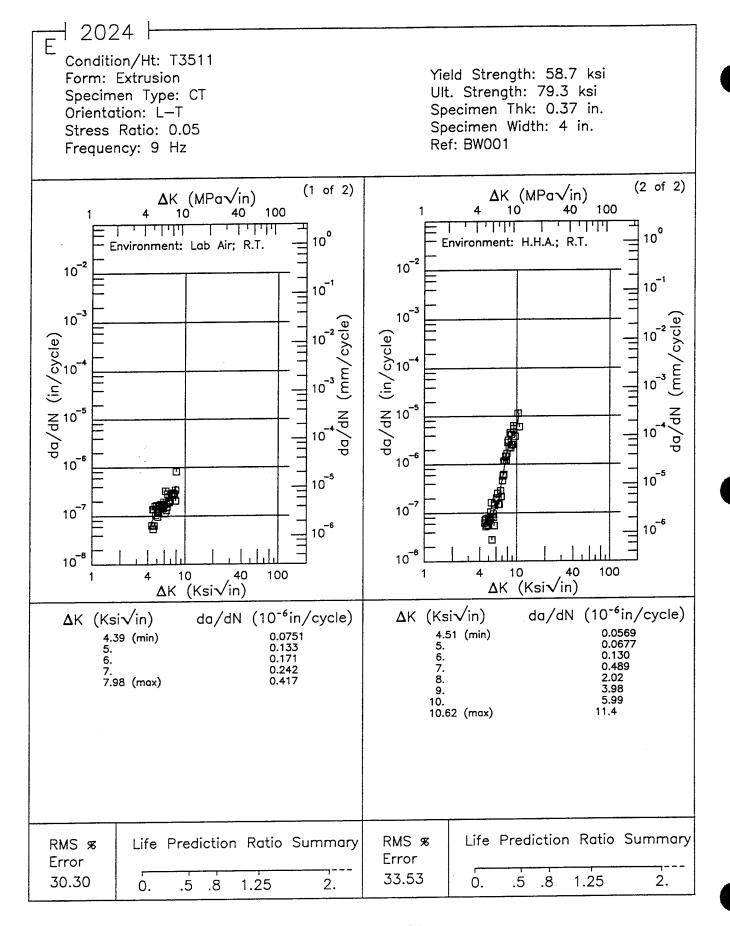


Figure 7.5.3.1.61

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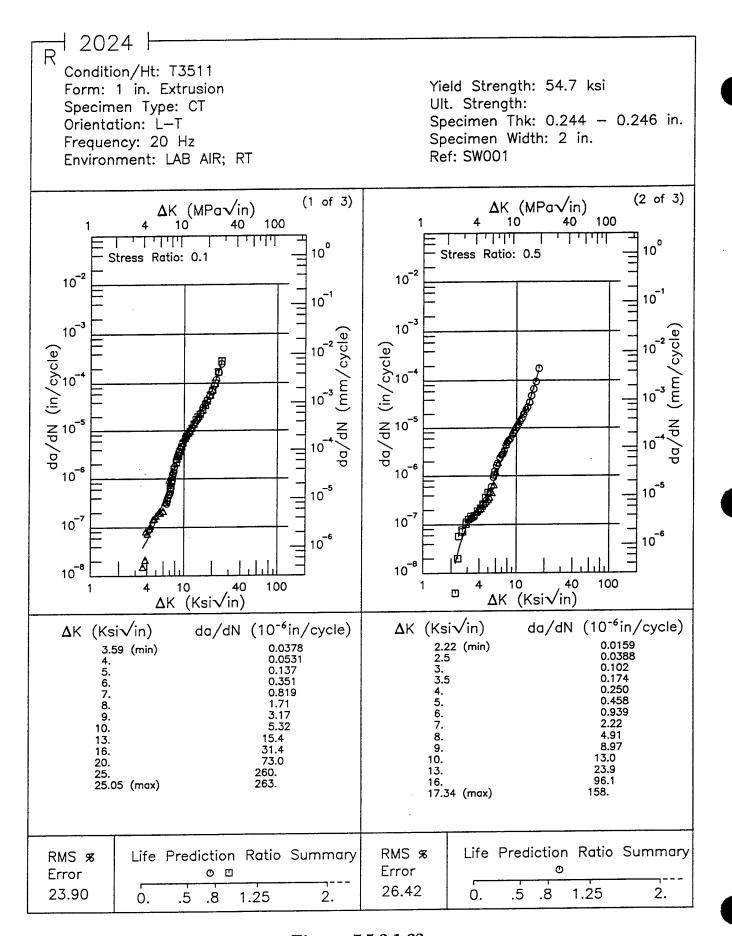


Figure 7.5.3.1.62

1 2024 F Condition/Ht: T3511 Form: 1 in. Extrusion Yield Strength: 54.7 ksi Ult. Strength: Specimen Type: CT Specimen Thk: 0.244 - 0.246 in. Orientation: L-T Specimen Width: 2 in. Frequency: 20 Hz Ref: SW001 Environment: LAB AIR; RT (3 of 3) Δ K (MPa \sqrt{in}) $\Delta K (MPa\sqrt{in})$ 100 10 40 100 10 40 77777 10⁰ 10° Stress Ratio: 0.8 10-2 10-2 10-1 10 10⁻³ 10 -3 da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10-6 10 5 10-5 10 7 10-7 10⁻⁶ 10 6 10⁻⁸ 10-8 40 40 100 10 100 10 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) ΔK (Ksi√in) $da/dN (10^{-6}in/cycle)$ 2.72 (min) 3. 3.5 0.132 0.158 4. 5. 6. 7. 7.47 (max) Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % \Box \Diamond Error Error

Figure 7.5.3.1.62 (Concluded)

2.

1.25

2.

0.

.5 .8

15.75

0.

.5

8.

1.25

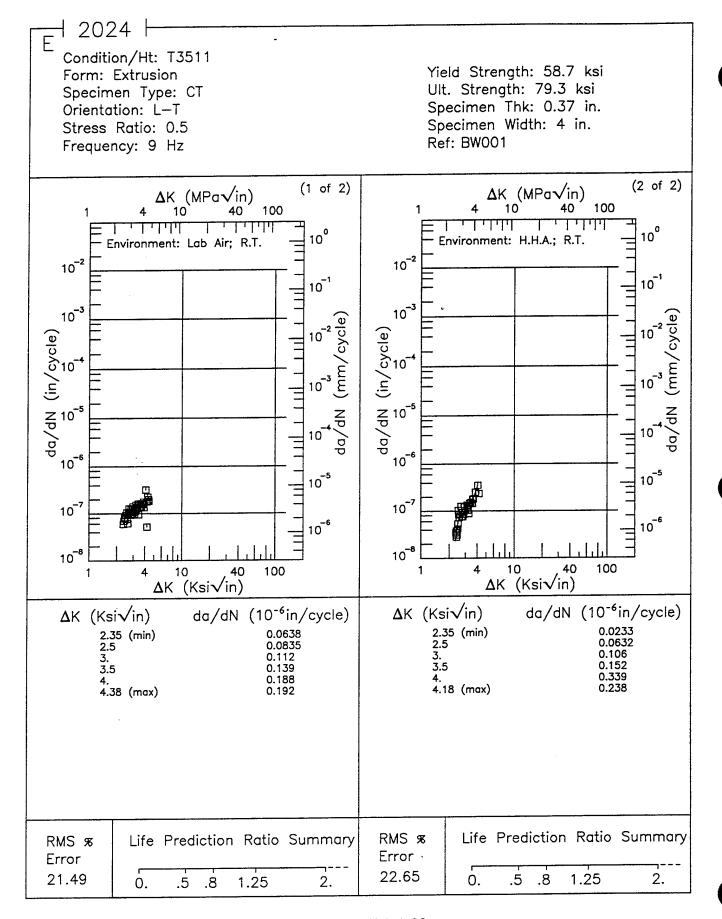


Figure 7.5.3.1.63

1 2024 F

Condition/Ht: T3511 Form: 1 in. Extrusion Specimen Type: CT

Orientation: L-T Frequency: 25 Hz

Environment: LAB AIR; RT

Yield Strength: 54.7 ksi

Ult. Strength:

Specimen Thk: 0.246 in. Specimen Width: 2 in.

Ref: SW001

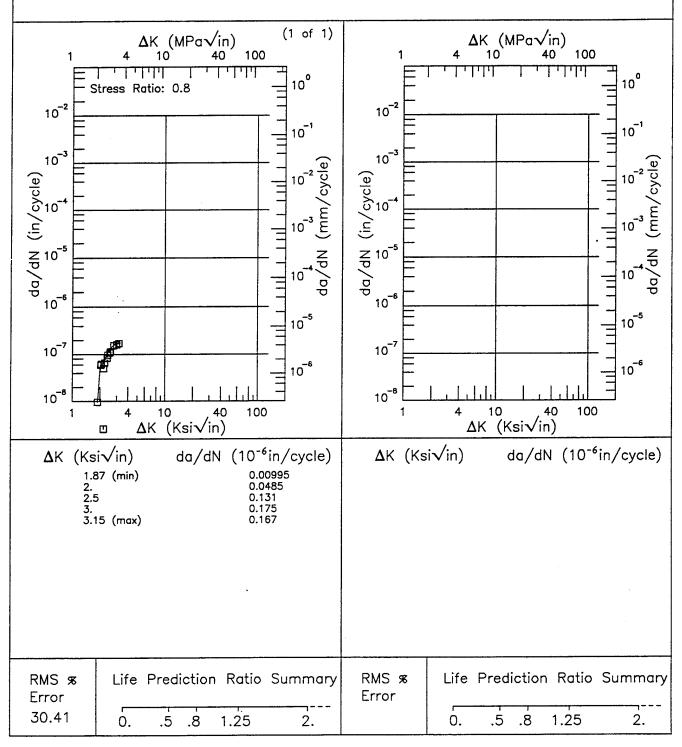


Figure 7.5.3.1.64

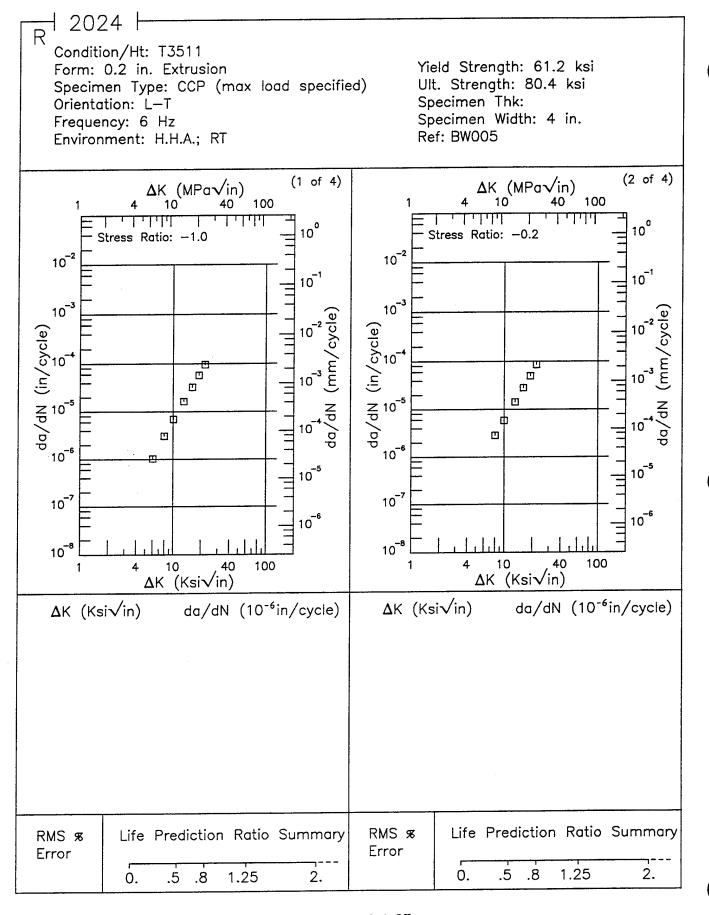


Figure 7.5.3.1.65

┧ 2024 ┟ Condition/Ht: T3511 Yield Strength: 61.2 ksi Form: 0.2 in. Extrusion Specimen Type: CCP (max load specified) Ult. Strength: 80.4 ksi Specimen Thk: Orientation: L-T Specimen Width: 4 in. Frequency: 6 Hz Ref: BW005 Environment: H.H.A.; RT (4 of 4) (3 of 4) Δ K (MPa \sqrt{in}) $\Delta K (MPa\sqrt{in})$ 10 40 100 11111 7 7 7 7 7 7 7 10⁰ 10° Stress Ratio: 0.4 Stress Ratio: 0.04 10-2 10-2 10 1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10-3 10-6 10_2 10_5 10⁻⁷ 10-7 10-6 10⁻⁶ 10 8 10 8 10 40 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) ΔK (Ksi√in) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error

Figure 7.5.3.1.65 (Concluded)

0.

.5 .8

1.25

2.

2.

1.25

0.

.5

.8

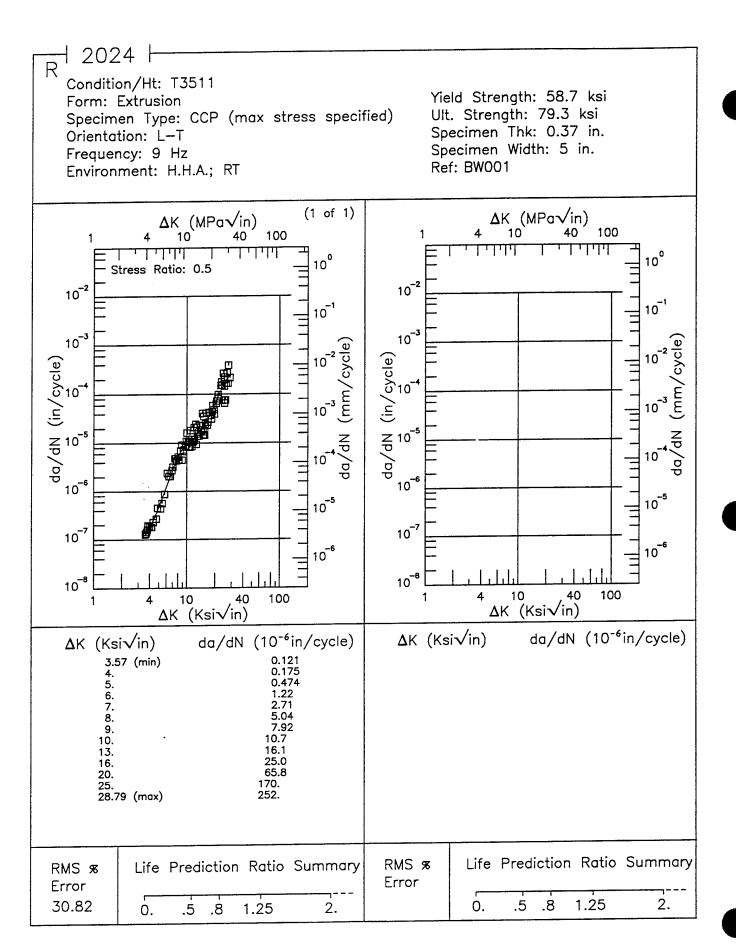


Figure 7.5.3.1.66

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2024 h Condition/Ht: T42 Yield Strength: 45.4 ksi Form: 0.75 in. Plate Specimen Type: CCP (max load specified) Ult. Strength: 68.5 ksi Specimen Thk: 0.25 in. Orientation: L-T Specimen Width: 4 in. Frequency: 10 Hz Ref: MA006 Environment: LAB AIR; RT (2 of 3)(1 of 3)ΔK (MPa√in) Δ K (MPa \sqrt{in}) 10 100 40 100 10 111111 1 1 1 1 1 1 1 10° 10° Stress Ratio: 0.02 Stress Ratio: -1.0 10-2 10-2 10-1 10 1 10⁻³ 10⁻³ 10 -2 da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10⁻⁵ 10 -5 10⁻⁷ 10⁻⁷ 10⁻⁶ 10-6 10⁻⁸ 10 8 10 40 100 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) **Δ**K (Ksi√in) 5.48 (min) 6. 7. 8. 5.32 (min) 0.680 6. 7. 8. 0.875 9. 9. 10. 13. 10. 13. 16. 20. 25. 30. 35. 497. 1006. 50. 999. 2563. 60. 67.71 (max) 2462. 55.92 (max) 5220.

Figure 7.5.3.1.67

2.

Life Prediction Ratio Summary

1.25

.5

0.

.8

RMS %

Error

28.82

RMS %

Error

44.77

Life Prediction Ratio Summary

.5

0.

.8

1.25

2.

1 2024 |R Condition/Ht: T42 Yield Strength: 45.4 ksi Form: 0.75 in. Plate Specimen Type: CCP (max load specified) Ult. Strength: 68.5 ksi Orientation: L-T Specimen Thk: 0.25 in. Specimen Width: 4 in. Frequency: 10 Hz Ref: MA006 Environment: LAB AIR; RT (3 of 3) $\Delta K_{10} (MPa\sqrt{in})$ ΔK (MPa√in) 10 100 100 ليليليا 10° Stress Ratio: 0.5 10⁻² 10-2 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10⁻⁵ 10 5 10⁻⁷ 10⁻⁷ 10⁻⁶ 10⁻⁶ 10⁻⁸ 10⁻⁸ 40 100 10 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 4.18 (min) 5. 6. 7. 8. 9. 10. 13. 16. 20. 25. 30. 35. 260. 39.01 (max) Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error 16.04 .5 .8 1.25 2. 1.25 0. 0. .5 .8 2.

Figure 7.5.3.1.67 (Concluded)

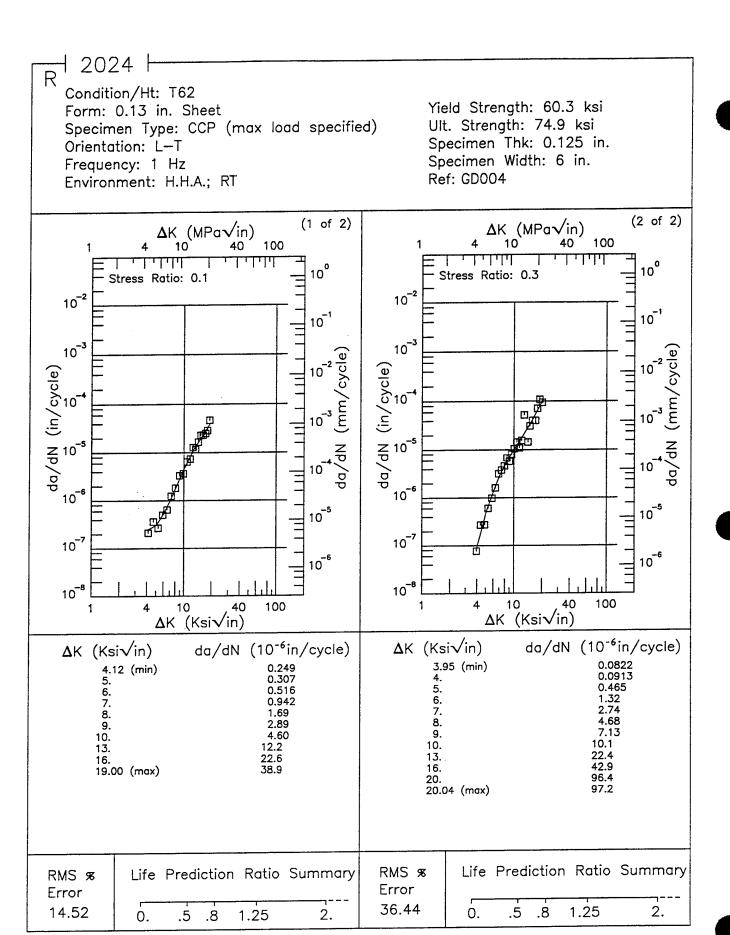


Figure 7.5.3.1.68

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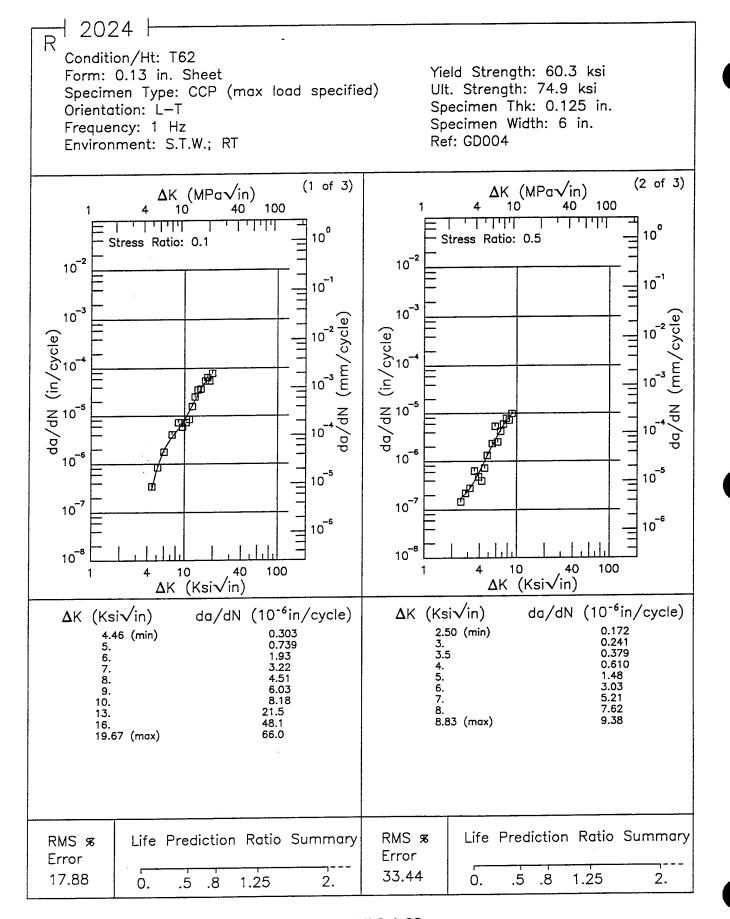


Figure 7.5.3.1.69

1 2024 FR Condition/Ht: T62 Form: 0.13 in. Sheet Yield Strength: 60.3 ksi Ult. Strength: 74.9 ksi Specimen Type: CCP (max load specified) Orientation: L-T Specimen Thk: 0.125 in. Specimen Width: 6 in. Frequency: 1 Hz Ref: GD004 Environment: S.T.W.; RT (3 of 3) Δ K (MPa \sqrt{in}) **Δ**K (MPa√in) 10 10 100 100 1 11111 10° 10° Stress Ratio: 0.7 10-2 10-2 10 1 10-1 10⁻³ 10⁻³ 10-2 da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10-6 10⁻⁵ 10 5 10⁻⁷ 10 7 10 6 10⁻⁶ 10⁻⁸ 10⁻⁸ 10 40 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) $da/dN (10^{-6}in/cycle)$ da/dN ($10^{-6}in/cycle$) ΔK (Ksi√in) 2.69 (min) 3. 3.5 4. 5. 0.165 0.247 0.441 7. 8. 8.21 (max) 10.6 13.1 Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 13.47 .5 0. .8 1.25 • 2. .5 .8 1.25 0. 2.

Figure 7.5.3.1.69 (Concluded)

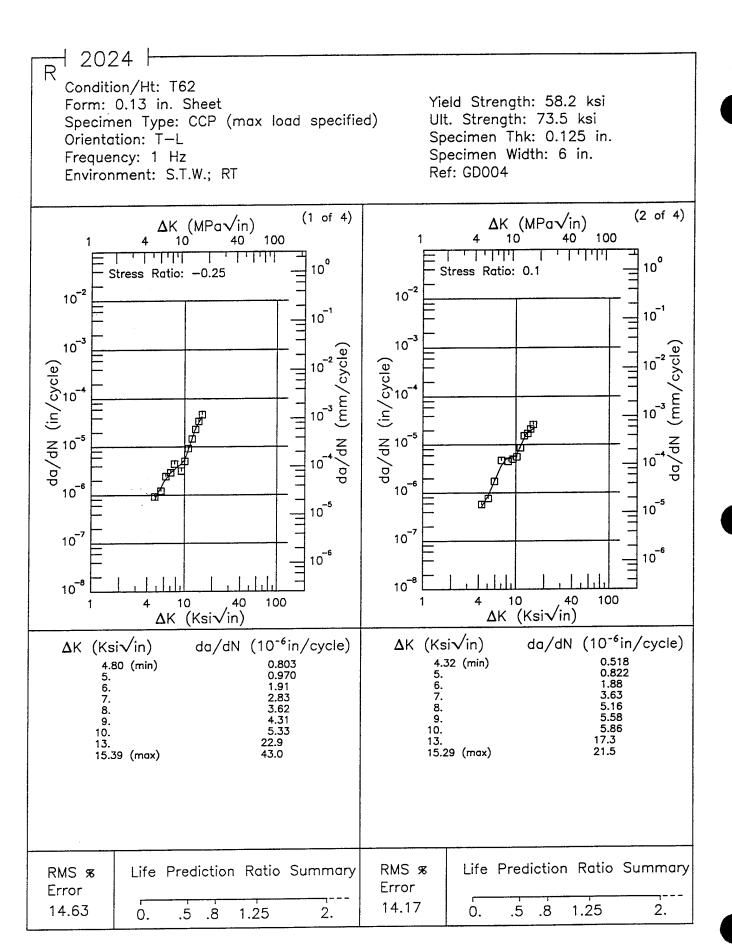


Figure 7.5.3.1.70

Condition/Ht: T62 Form: 0.13 in. Sheet Yield Strength: 58.2 ksi Ult. Strength: 73.5 ksi Specimen Type: CCP (max load specified) Specimen Thk: 0.125 in. Orientation: T-L Specimen Width: 6 in. Frequency: 1 Hz Ref: GD004 Environment: S.T.W.; RT (3 of 4)(4 of 4) Δ K (MPa \sqrt{in}) ∆K (MPa√in) 40 100 100 10° 10° Stress Ratio: 0.5 Stress Ratio: 0.3 10-2 10 2 10-1 10 10⁻³ 10⁻³ 10⁻² Ot Cycle) da/dN (in/cycle) da/dN (in/cycle) 10-6 10⁻⁵ 10⁻⁵ 10 7 10⁻⁷ 10⁻⁶ 10 6 10 8 10 -8 10 40 100 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) **Δ**K (Ksi√in) ΔK (Ksi√in) da/dN ($10^{-6}in/cycle$) $da/dN (10^{-6}in/cycle)$ 3.26 (min) 3.5 2.24 (min) 2.5 3. 3.5 0.424 0.463 4. 5. 6. 7. 8. 13. 30.7 89.9 10. 11.22 (max) 16.37 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 24.08 24.58 0. .5 .8 1.25 2. 0. .5 .8 1.25 2.

1 2024 F

Figure 7.5.3.1.70 (Concluded)

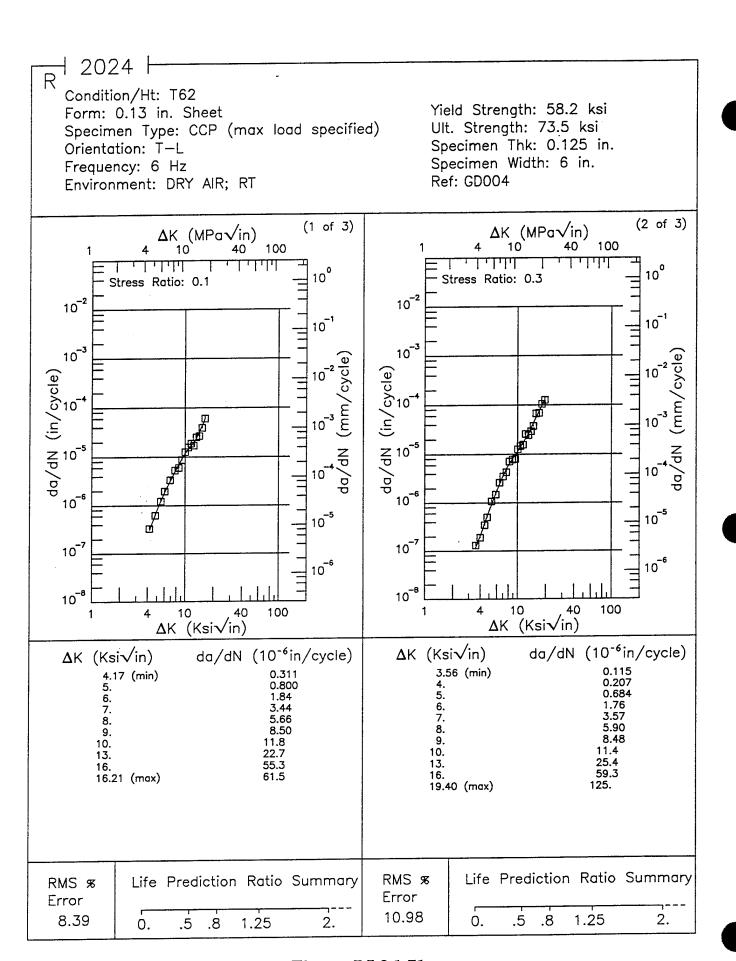


Figure 7.5.3.1.71

1 2024 |R

Condition/Ht: T62 Form: 0.13 in. Sheet

Specimen Type: CCP (max load specified)

Orientation: T-L Frequency: 6 Hz

Environment: DRY AIR; RT

Yield Strength: 58.2 ksi Ult. Strength: 73.5 ksi Specimen Thk: 0.125 in. Specimen Width: 6 in.

Ref: GD004

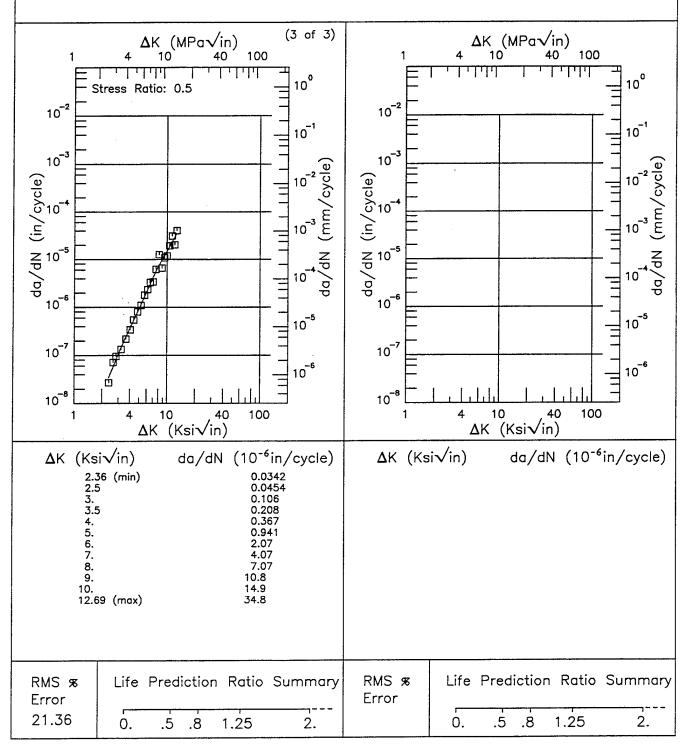


Figure 7.5.3.1.71 (Concluded)

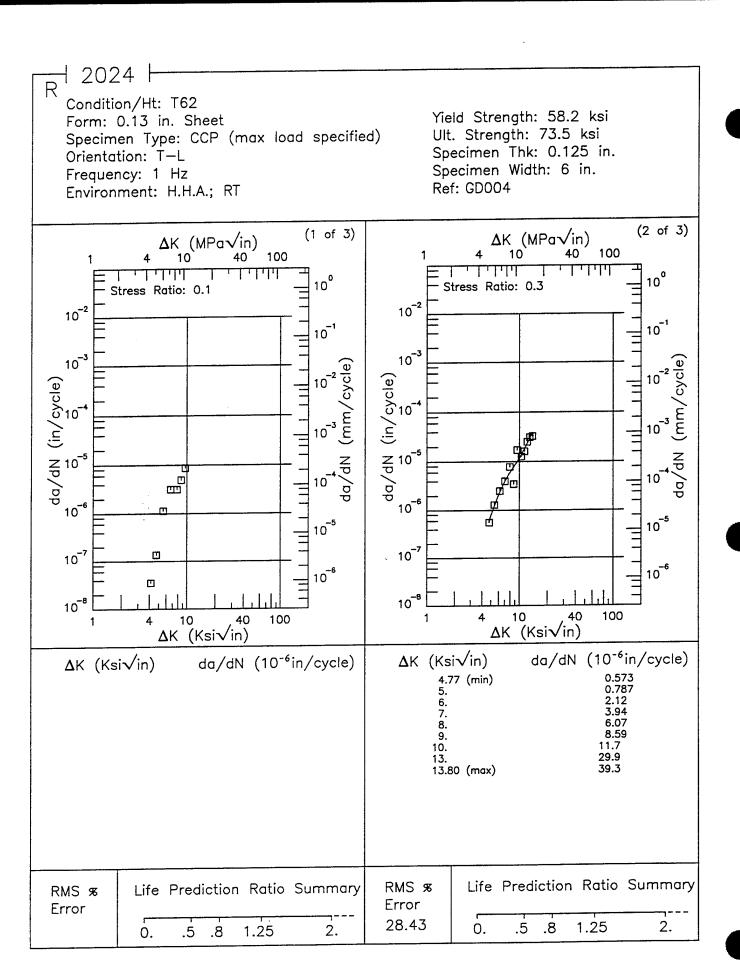


Figure 7.5.3.1.72

ndition (Ht; T62)

Condition/Ht: T62 Form: 0.13 in. Sheet

Specimen Type: CCP (max load specified)

Orientation: T-L Frequency: 1 Hz

Environment: H.H.A.; RT

Yield Strength: 58.2 ksi Ult. Strength: 73.5 ksi Specimen Thk: 0.125 in. Specimen Width: 6 in.

Ref: GD004

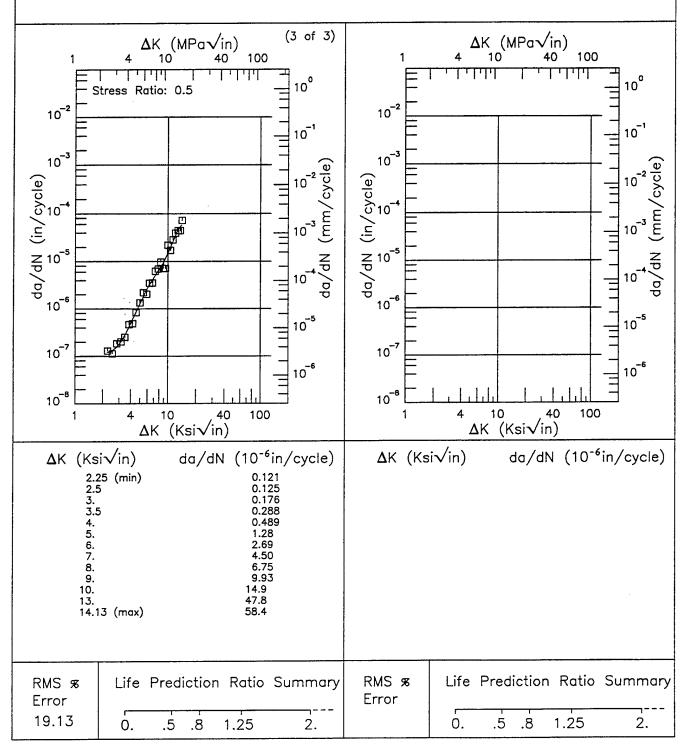


Figure 7.5.3.1.72 (Concluded)

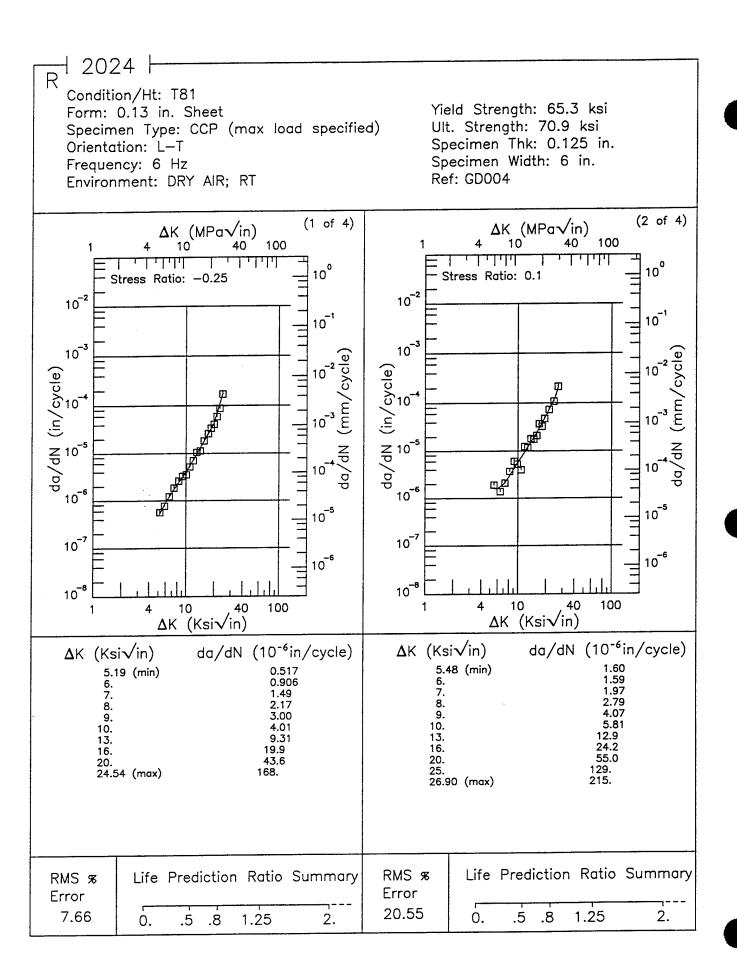


Figure 7.5.3.1.73

Condition/Ht: T81 Form: 0.13 in. Sheet Yield Strength: 65.3 ksi Specimen Type: CCP (max load specified) Ult. Strength: 70.9 ksi Orientation: L-T Specimen Thk: 0.125 in. Frequency: 6 Hz Specimen Width: 6 in. Ref: GD004 Environment: DRY AIR; RT (3 of 4)(4 of 4)ΔK (MPa√in) Δ K (MPa \sqrt{in}) 10 40 100 100 ليليليان 100 10° Stress Ratio: 0.3 Stress Ratio: 0.5 10-2 10-2 10 1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) 10-2 da/dN (in/cycle) 10 6 10⁻⁶ 10 -5 10⁻⁵ 10⁻⁷ 10⁻⁷ 10 6 10⁻⁶ 10⁻⁸ 10⁻⁸ 40 40 100 10 100 10 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) **Δ**K (Ksi√in) da/dN (10⁻⁶in/cycle) $da/dN (10^{-6}in/cycle)$ 5.14 (min) 6. 7. 8. 2.94 (min) 3. 3.5 0.911 0.198 4. 5. 6. 7. 8. 9. 10. 13. 16. 9. 10. 13. 20. 21.75 (max) 16. 21.91 (max) RMS & Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary Error Error 23.71 27.11 1.25 0. .5 8. 1.25 2. 0. .5 8. 2.

┨ 2024 ┠

Figure 7.5.3.1.73 (Concluded)

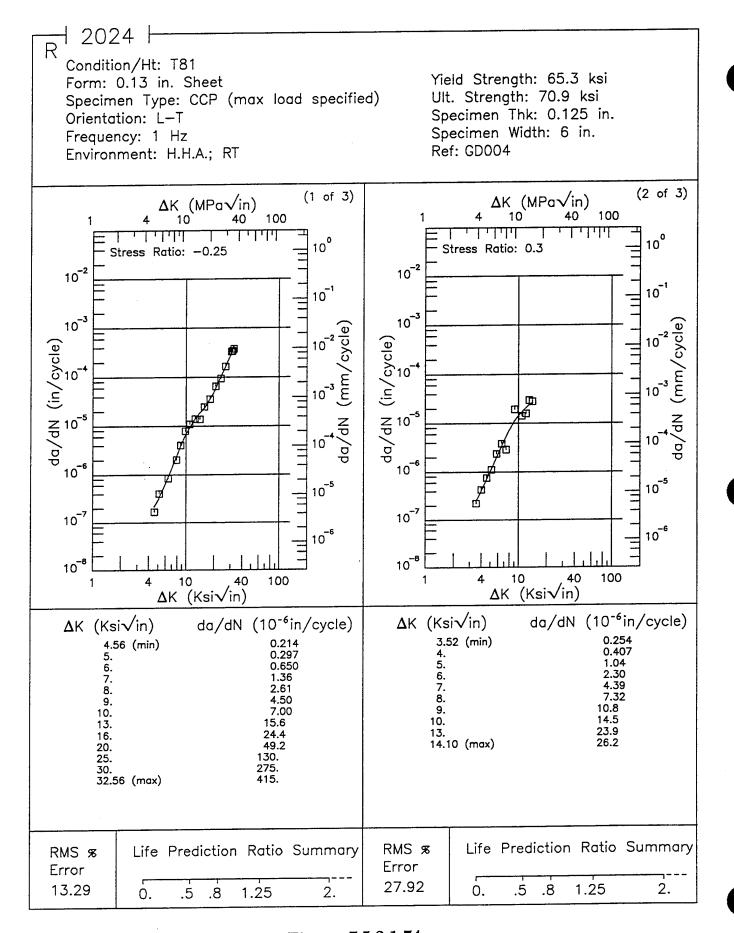


Figure 7.5.3.1.74

┨ 2024 ├ Condition/Ht: T81 Yield Strength: 65.3 ksi Form: 0.13 in. Sheet Ult. Strength: 70.9 ksi Specimen Type: CCP (max load specified) Specimen Thk: 0.125 in. Orientation: L-T Specimen Width: 6 in. Frequency: 1 Hz Ref: GD004 Environment: H.H.A.; RT (3 of 3) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 100 40 100 10 10 ايابايا 10° 10° Stress Ratio: 0.5 10⁻² 10-2 10⁻¹ 10 1 10⁻³ 10⁻³ 10-2 da/dN (in/cycle) da/dN (in/cycle) 10⁻³ 10-6 10-6 10 5 10⁻⁵ 10 7 10⁻⁷ 10⁻⁶ 10⁻⁶ 10⁻⁸ 10-8 100 100 10 40 40 10 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) 0.634 0.697 3.89 (min) 4. 5. 6. 7. 8. 13. 16. 19.90 (max) 114. 367. Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 14.20 1.25 .5 0. .5 .8 2. 0. .8 1.25 2.

Figure 7.5.3.1.74 (Concluded)

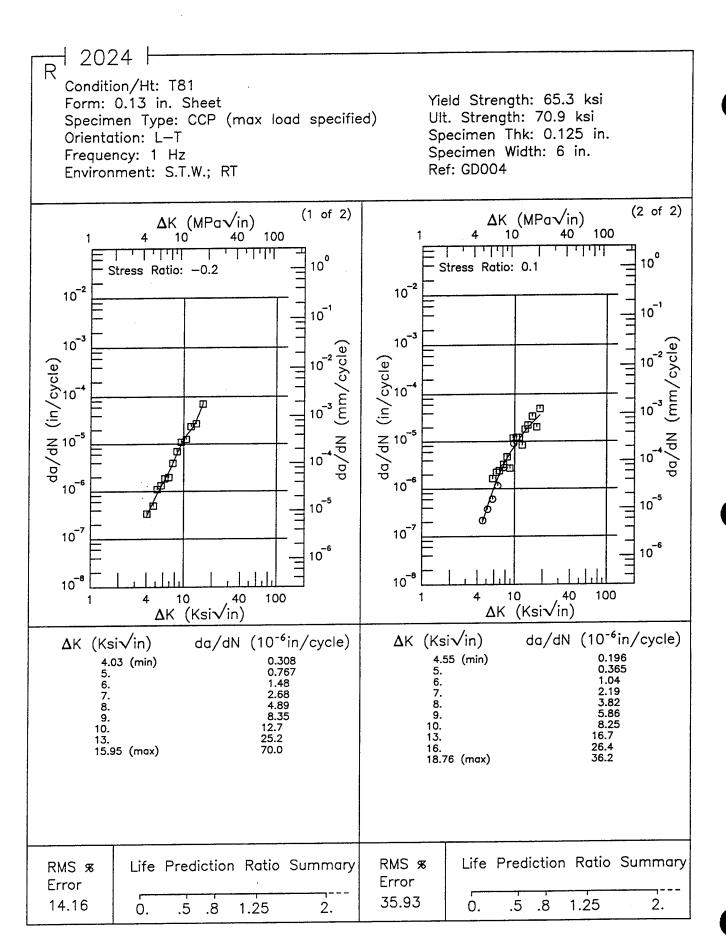


Figure 7.5.3.1.75

2024 H Condition/Ht: T81 Form: 0.04 in. Sheet Yield Strength: 64.4 ksi Ult. Strength: 70.5 ksi Specimen Type: CCP (max load specified) Specimen Thk: 0.04 in. Orientation: L-T Specimen Width: 6.45 in. Frequency: 2 Hz Ref: 86734 Environment: LAB AIR; RT (1 of 1) ΔK (MPa√in) Δ K (MPa \sqrt{in}) 10 100 100 11111 T T T T T10⁰ Stress Ratio: 0.05 10-2 10-2 10-1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻³ 10⁻⁶ 10-6 10⁻⁵ 10⁻⁵ 10⁻⁷ 10-7 10 -6 10-6 10 -8 10⁻⁸ 100 10 40 100 10 40 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN $(10^{-6}in/cycle)$ ΔK (Ksi√in) **Δ**K (Ksi√in) 23.63 (min) 25. 30. 36.74 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 0.76 0. .5 .8 1.25 2. 0. .5 .8 1.25 2.

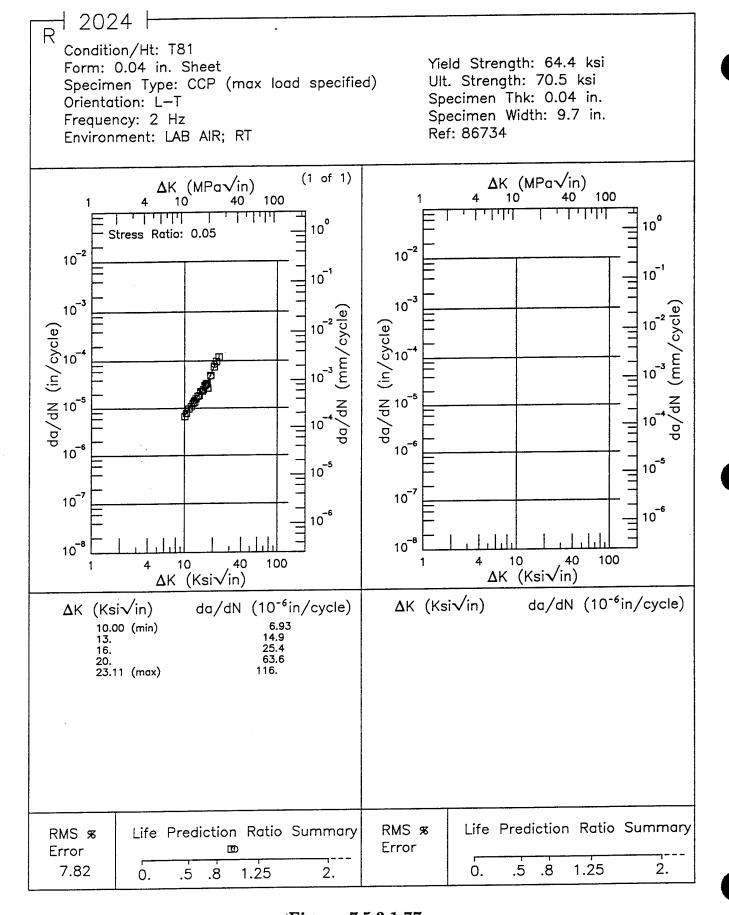


Figure 7.5.3.1.77

┨ 2024 ┞ Condition/Ht: T81 Yield Strength: 64.4 ksi Form: 0.03 in. Sheet Specimen Type: CCP (max load specified) Ult. Strength: 70.5 ksi Specimen Thk: 0.032 in. Orientation: L-T Specimen Width: 6 in. Frequency: 2 Hz Ref: 86734 Environment: LAB AIR; RT (1 of 1) $\Delta K_{10} (MPa\sqrt{in})$ Δ K (MPa \sqrt{in}) 100 10 40 100 10° Stress Ratio: 0.05 10-2 10-2 10 -1 10 1 10⁻³ 10⁻³ 10-2 da/dN (in/cycle) da/dN (in/cycle) \Box 10⁻³ 凹 \Box 10⁻⁶ 10-6 10 -5 10 5 10-7 10-7 10 6 10 6 10⁻⁸ 10⁻⁸ 100 40 100 10 10 40 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error .5 Ò. .5 .8 1.25 2. .8 1.25 2. 0.

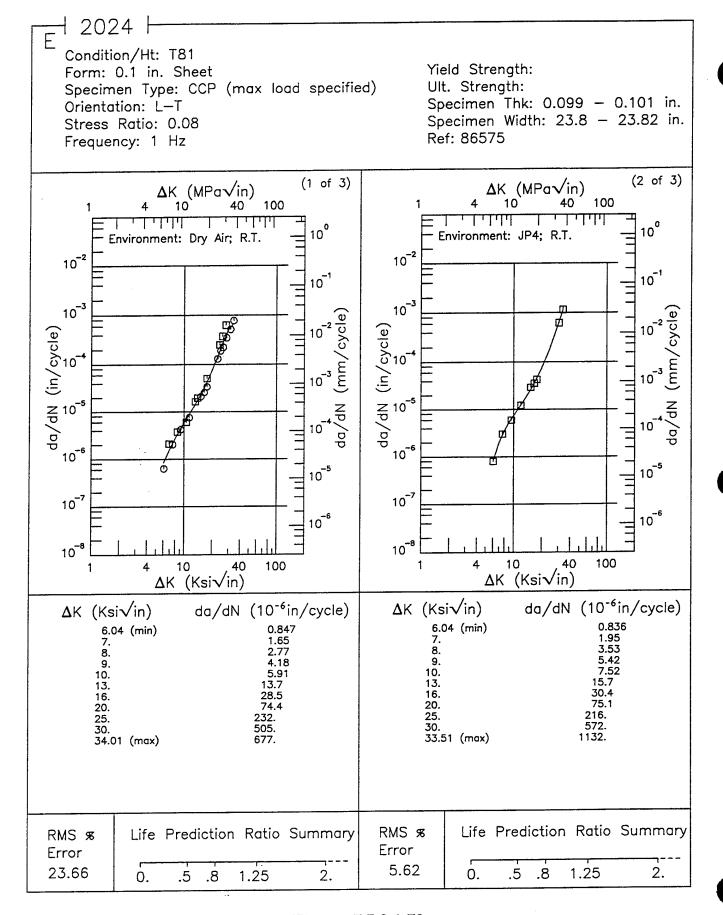


Figure 7.5.3.1.79

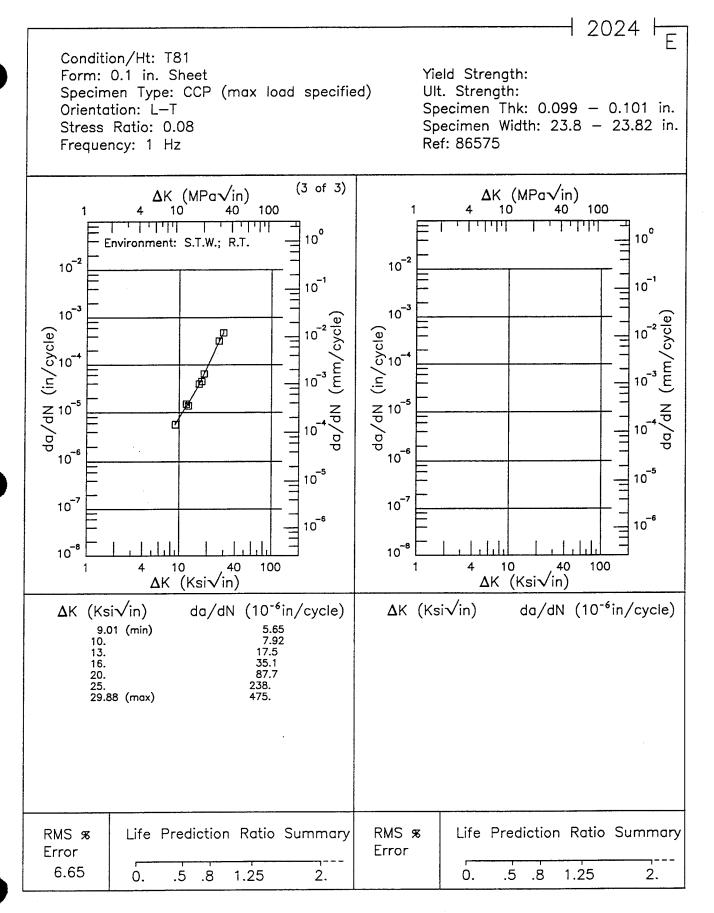


Figure 7.5.3.1.79 (Concluded)

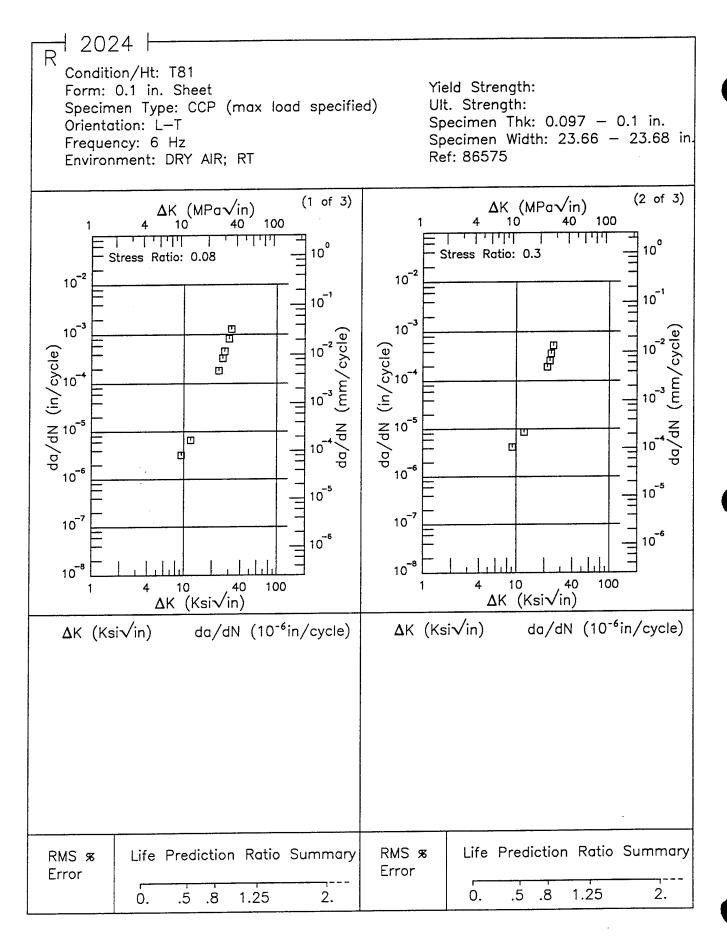


Figure 7.5.3.1.80

1 2024 F Condition/Ht: T81 Yield Strength: Form: 0.1 in. Sheet Specimen Type: CCP (max load specified) Ult. Strength: Specimen Thk: 0.097 - 0.1 in. Orientation: L-T Specimen Width: 23.66 - 23.68 in Frequency: 6 Hz Ref: 86575 Environment: DRY AIR; RT (3 of 3) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 10 100 10 40 100 للليابات 10° 10° Stress Ratio: 0.5 10-2 10-2 10⁻¹ 10 10-3 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10-6 10-6 10⁻⁵ 10 -5 10⁻⁷ 10⁻⁷ 10⁻⁶ 10 -6 10 8 10⁻⁸ 100 10 40 100 10 40 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) **Δ**K (Ksi√in) 0.867 1.20 2.54 4.66 (min) 5. 6. 7. 8. 9. 13. 210. 22.07 (max) 2658. Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 8.38 1.25 .5 2. 0. .5 .8 1.25 2. 0. .8

Figure 7.5.3.1.80 (Concluded)

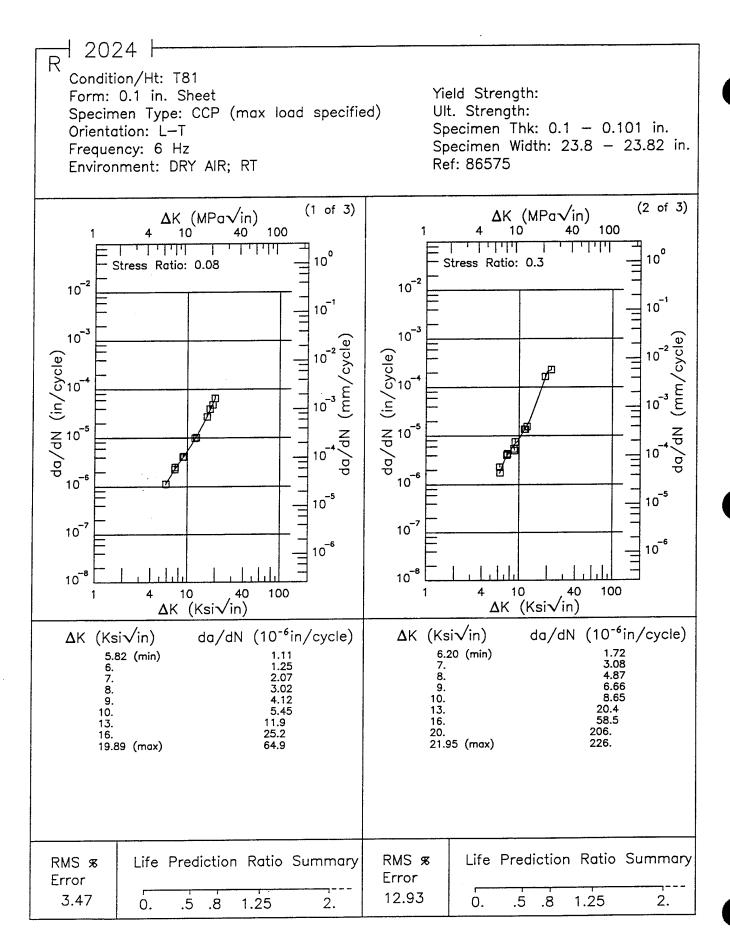


Figure 7.5.3.1.81

1 2024 F Condition/Ht: T81 Yield Strength: Form: 0.1 in. Sheet Specimen Type: CCP (max load specified) Ult. Strength: Specimen Thk: 0.1 - 0.101 in. Orientation: L-T Specimen Width: 23.8 - 23.82 in. Frequency: 6 Hz Ref: 86575 Environment: DRY AIR; RT (3 of 3) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 100 10 40 10 100 40 10⁰ 10° Stress Ratio: 0.5 10-2 10-2 10-1 10-1 10⁻³ 10⁻³ 10 -2 da/dN (in/cycle) da/dN (in/cycle) 10 -3 10 10⁻⁶ 10-6 10 5 10 -5 10⁻⁷ 10⁻⁷ 10 -6 10 -6 10 8 10⁻⁸ 10 40 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) $da/dN (10^{-6}in/cycle)$ ΔK (Ksi√in) **Δ**K (Ksi√in) 3.21 (min) 3.5 4. 5. 6. 7. 8. 9. 0.130 0.242 13. 199. 17.77 (max) Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error 5.53 0. .5 .8 1.25 2. 1.25 0. .5 .8 2.

Figure 7.5.3.1.81 (Concluded)

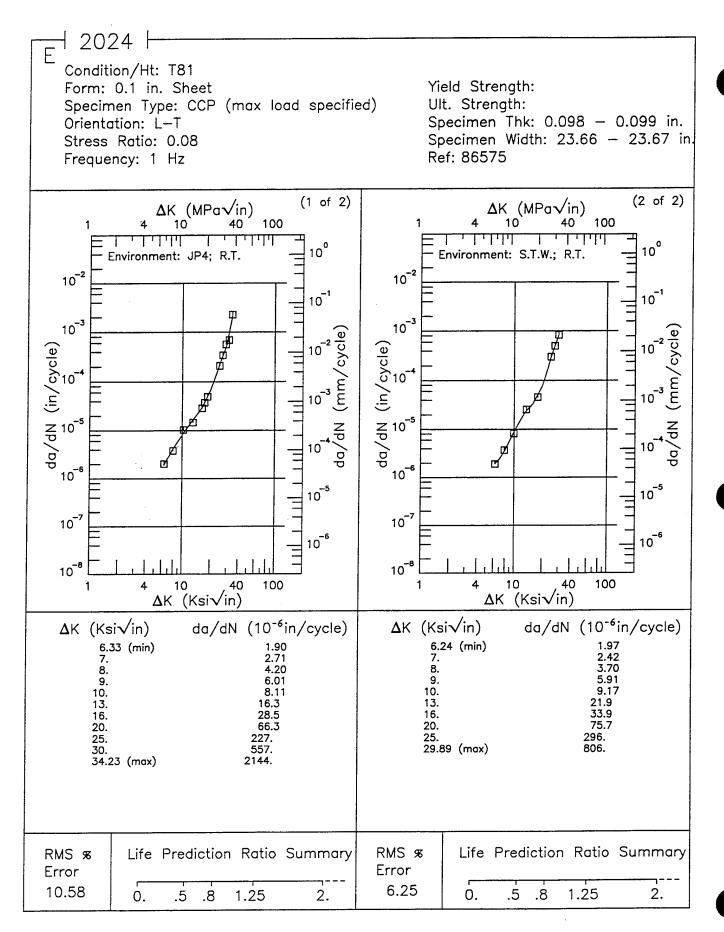


Figure 7.5.3.1.82

1 2024 F Condition/Ht: T81 Yield Strength: 65.3 ksi Form: 0.13 in. Sheet Ult. Strength: 70.9 ksi Specimen Type: CCP (max load specified) Specimen Thk: 0.125 in. Orientation: L-T Specimen Width: 6 in. Stress Ratio: 0.1 Ref: GD004 Environment: H.H.A.; RT (2 of 2) (1 of 2) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 100 10 10 40 100 1 1 1 1 1 1 1 1 11111 <u>. 1 (1,11,1</u> 10° 10° Frequency: 1. Hz Frequency: 0.1 Hz 10-2 10-2 10⁻¹ 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10 -3 10⁻⁶ 10⁻⁶ 10 -5 10⁻⁵ 10⁻⁷ 10⁻⁷ 10⁻⁶ 10 6 10⁻⁸ 10⁻⁸ 40 100 10 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) **Δ**K (Ksi√in) $da/dN (10^{-6}in/cycle)$ $da/dN (10^{-6}in/cycle)$ **Δ**K (Ksi√in) 0.750 1.29 5.09 (min) 1.14 5.09 (min) 6. 7. 8. 6. 7. 8. 9.64 9. 9. 10. 10. 13. 13. 232. 339. 16. 20. 17.46 (max) 25. 30. 32.48 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 13.30 44.38 1.25 .5 2. 0. .5 .8 1.25 2. 0. .8

Figure 7.5.3.1.83

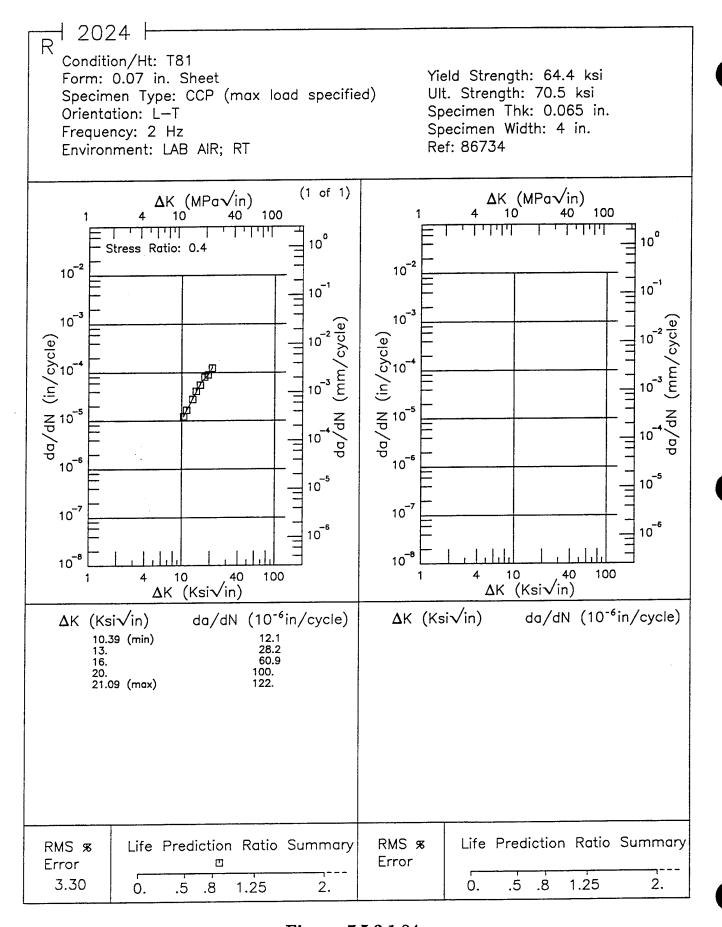


Figure 7.5.3.1.84

1 2024 R

Condition/Ht: T81 Form: 0.13 in. Sheet

Specimen Type: CCP (max load specified)

Orientation: T-L Frequency: 6 Hz

Environment: DRY AIR; RT

Yield Strength: 65.8 ksi Ult. Strength: 73.1 ksi Specimen Thk: 0.125 in. Specimen Width: 6 in.

Ref: GD004

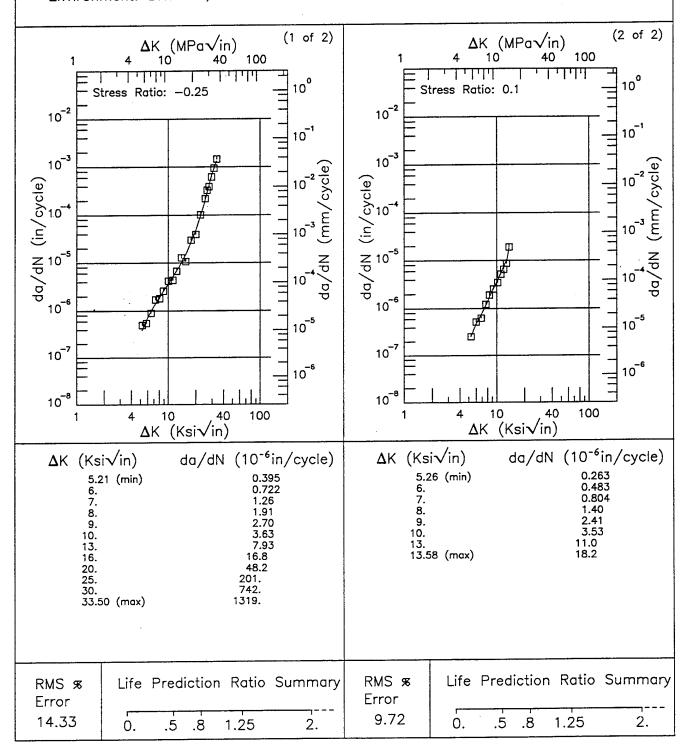


Figure 7.5.3.1.85

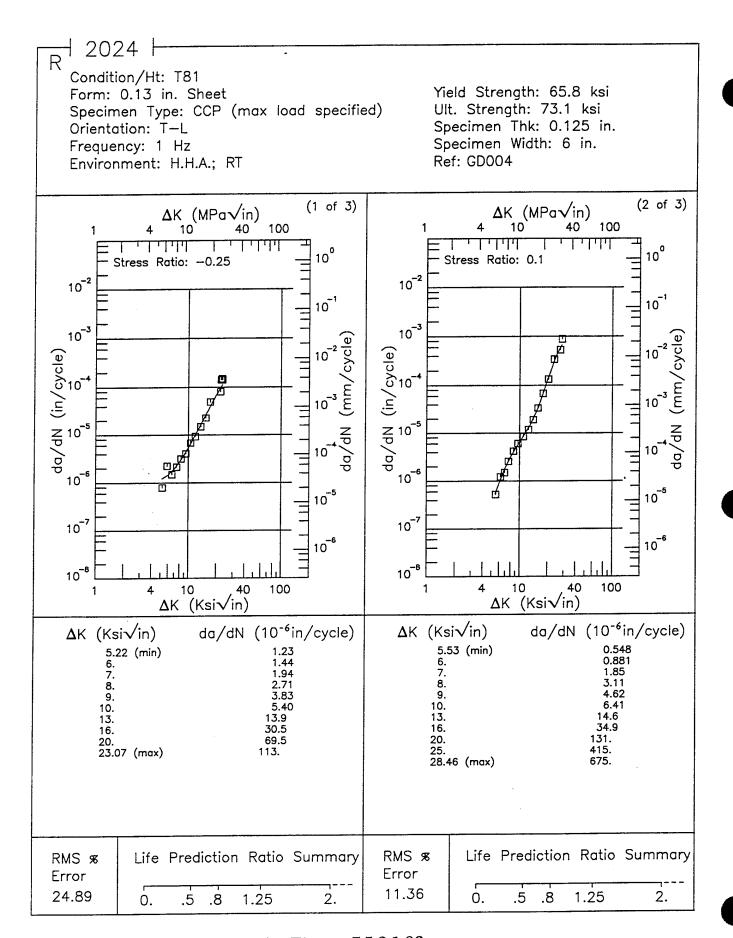


Figure 7.5.3.1.86

Condition/Ht: T81 Yield Strength: 65.8 ksi Form: 0.13 in. Sheet Ult. Strength: 73.1 ksi Specimen Type: CCP (max load specified) Specimen Thk: 0.125 in. Orientation: T-L Specimen Width: 6 in. Frequency: 1 Hz Ref: GD004 Environment: H.H.A.; RT (3 of 3)ΔK (MPa√in) 10 40 Δ K (MPa \sqrt{in}) 100 100 10 40 11111 10° 1 1111 10° Stress Ratio: 0.5 10-2 10-2 10-1 10 1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10 6 10⁻⁶ 10⁻⁵ 10-5 10⁻⁷ 10-7 10 -6 10 6 10⁻⁸ 10⁻⁸ 40 100 10 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) Δ K (Ksi \sqrt{in}) da/dN (10⁻⁶in/cycle) 2.80 (min) 3. 3.5 4. 10. 13. 18.14 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 2. 14.41 .5 .8 1.25 0. .5 .8 1.25 2. 0.

┨ 2024 ┠

Figure 7.5.3.1.86 (Concluded)

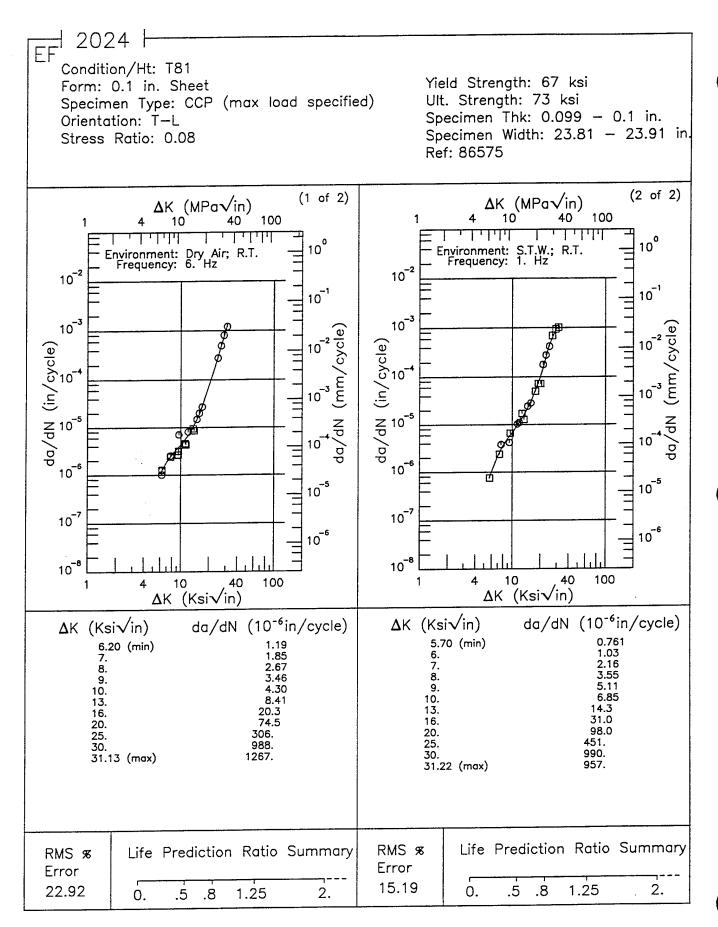


Figure 7.5.3.1.87

Condition/Ht: T81 Form: 0.13 in. Sheet Yield Strength: 65.8 ksi Ult. Strength: 73.1 ksi Specimen Type: CCP (max load specified) Specimen Thk: 0.125 in. Orientation: T-L Specimen Width: 6 in. Frequency: 1 Hz Ref: GD004 Environment: S.T.W.; RT (2 of 2) (1 of 2) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 10 100 40 100 10 7 7 7 7 7 7 11111 10° 10° Stress Ratio: 0.3 Stress Ratio: 0.1 10-2 10-2 10⁻¹ 10-1 10⁻³ 10⁻³ 10-2 da/dN (in/cycle) da/dN (in/cycle) 10 10⁻⁶ 10-6 10⁻⁵ 10⁻⁵ 10⁻⁷ 10⁻⁷ 10-6 10⁻⁶ 10 8 10⁻⁸ 10 40 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) Δ K (Ksi \sqrt{in}) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 4.03 (min) 5. 6. 7. 9. 10. 13. 16. 131. 183. 20.39 (max) Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error 34.42 0. 0. .5 .8 1.25 2. .5 .8 1.25 2.

1 2024 H

Figure 7.5.3.1.88

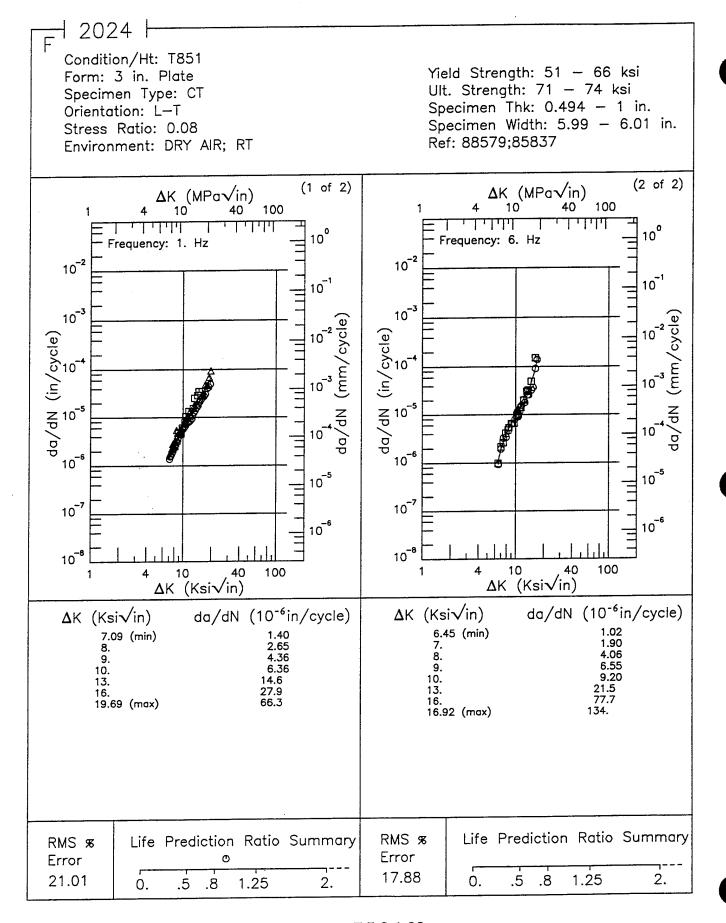


Figure 7.5.3.1.89

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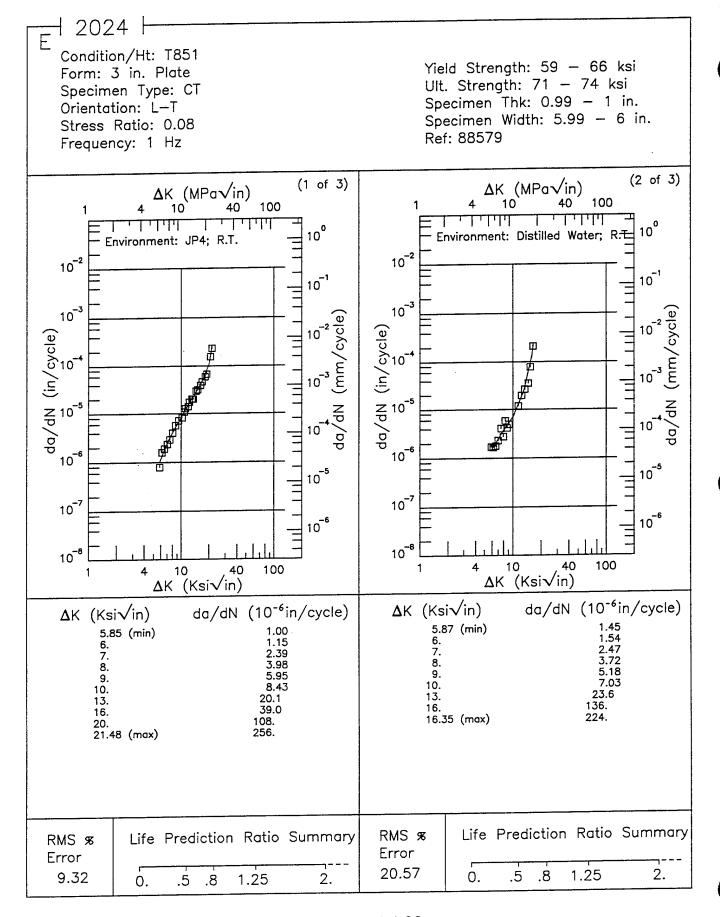


Figure 7.5.3.1.90

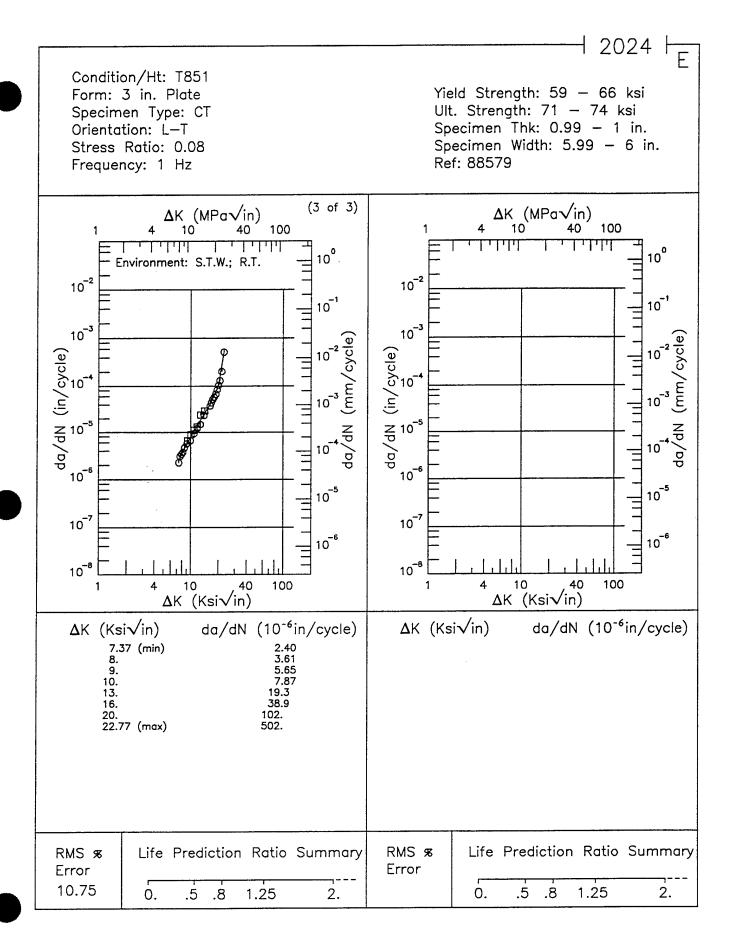


Figure 7.5.3.1.90 (Concluded)

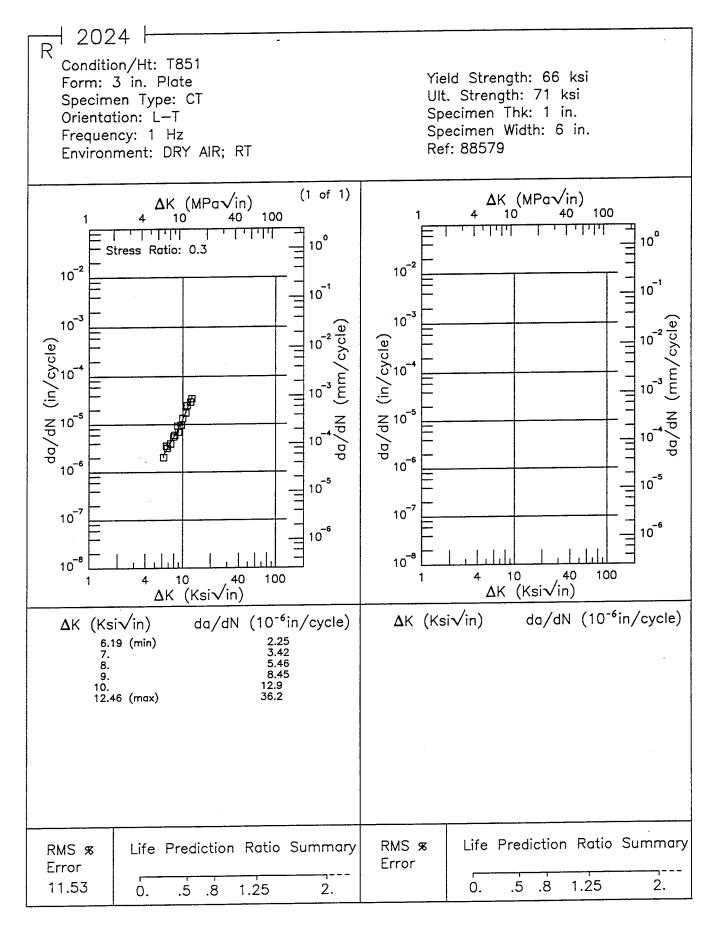


Figure 7.5.3.1.91

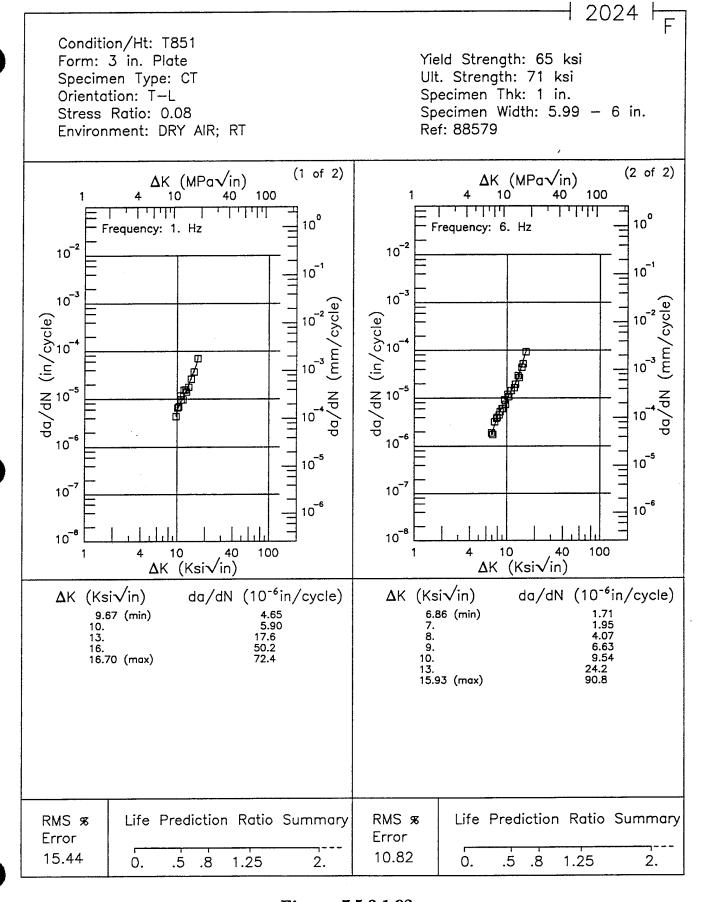


Figure 7.5.3.1.92

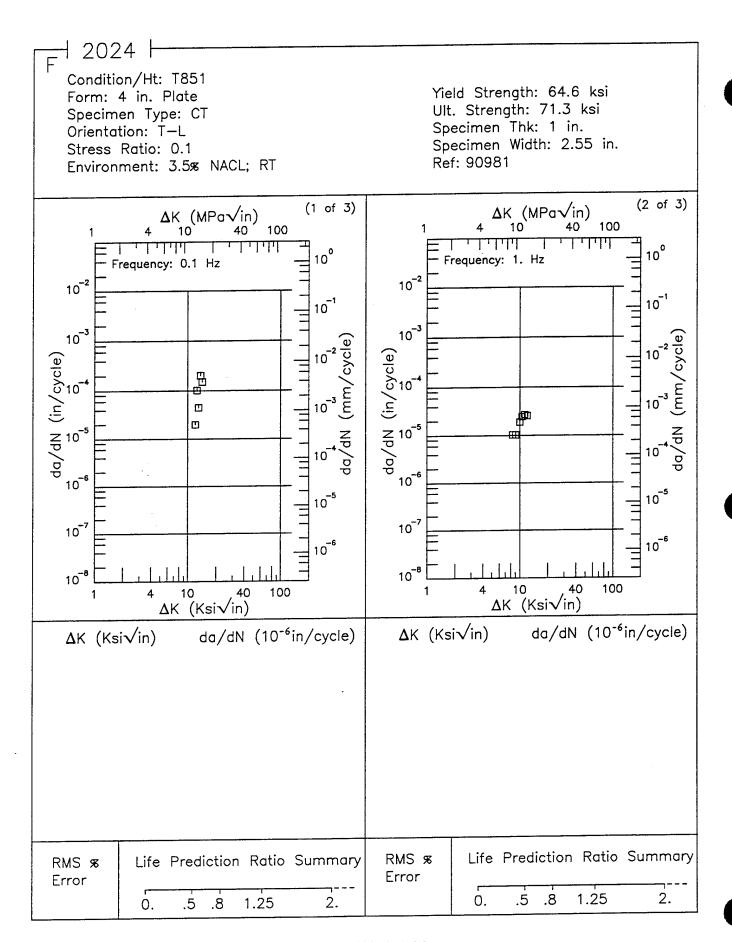


Figure 7.5.3.1.93

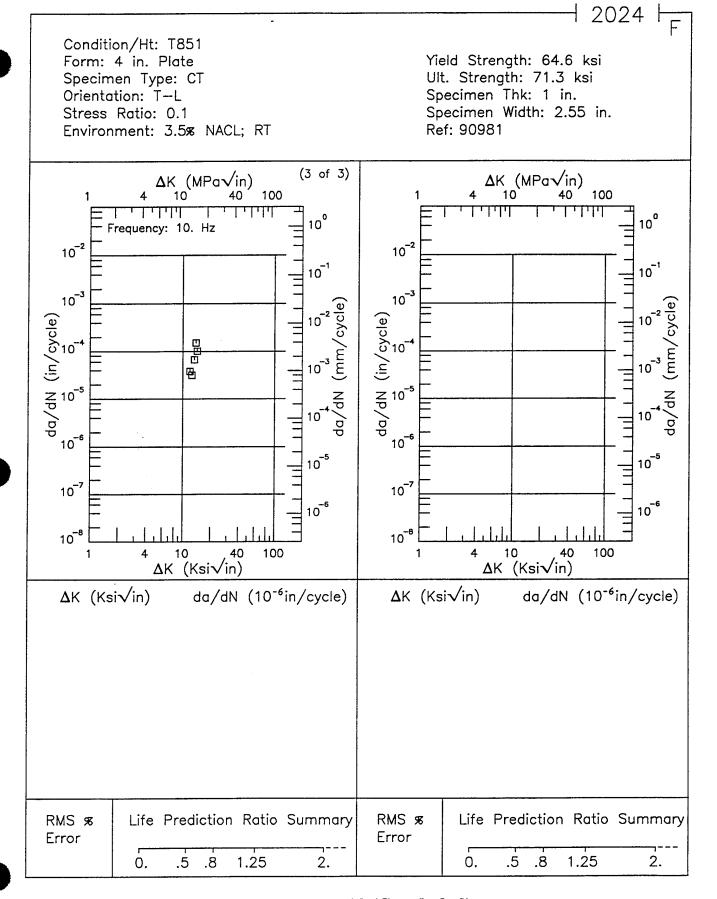


Figure 7.5.3.1.93 (Concluded)

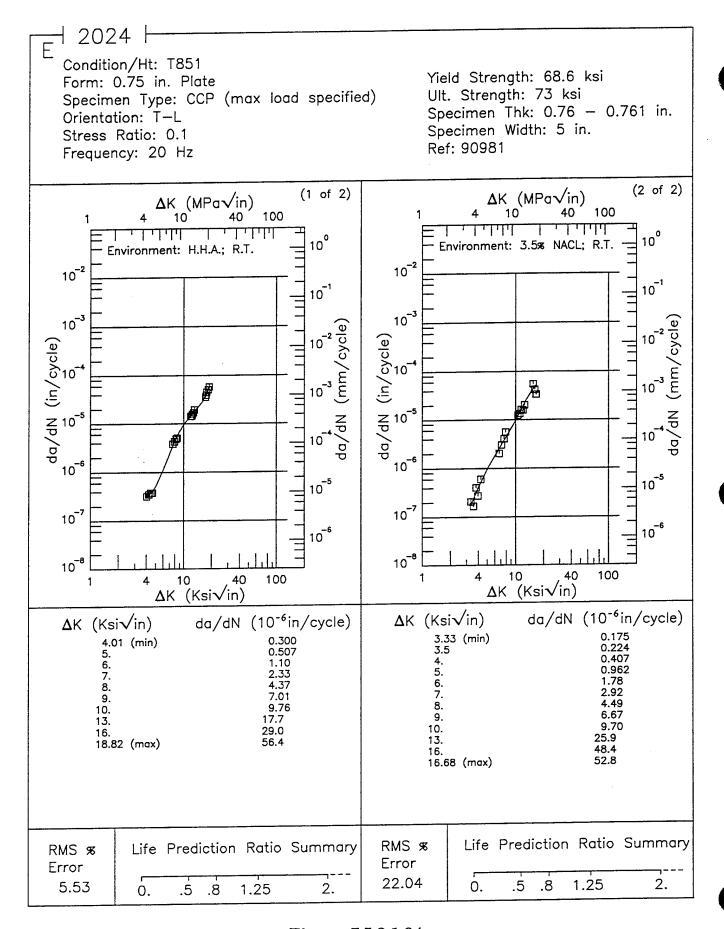


Figure 7.5.3.1.94

1 2024 F Condition/Ht: T851 Yield Strength: 66.6 ksi Form: 0.38 in. Plate Ult. Strength: 72 ksi Specimen Type: CCP (max load specified) Specimen Thk: 0.375 in. Orientation: T-L Specimen Width: 5 in. Stress Ratio: 0.1 Ref: 90981 Frequency: 20 Hz (2 of 2) (1 of 2) Δ K (MPa \sqrt{in}) ΔK (MPa√in) 10 100 10 40 100 11111 77777 7 7 7 7 7 7 100 10° Environment: 3.5% NACL; R.T. Environment: H.H.A.; R.T. 10-2 10⁻² 10 1 10 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10-3 10 6 10⁻⁶ 10 -5 10 5 10⁻⁷ 10⁻⁷ 10⁻⁶ 10 6 10⁻⁸ 10⁻⁸ 100 10 40 100 10 40 ΔK (Ksi√in) ΔK (Ksi√in) $da/dN (10^{-6}in/cycle)$ Δ K (Ksi \sqrt{in}) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 4.70 (min) 5. 6. 7. 8. 3.57 5.68 1.08 1.43 8.03 (min) 10. 8.28 13. 18.6 16. 35.1 20. 22.79 (max) 79.2 143. 10. 13. 16. 20. 28.22 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 11.78 11.62 2. 1.25 0. .5 8. 1.25 0. .5 8. 2.

Figure 7.5.3.1.95

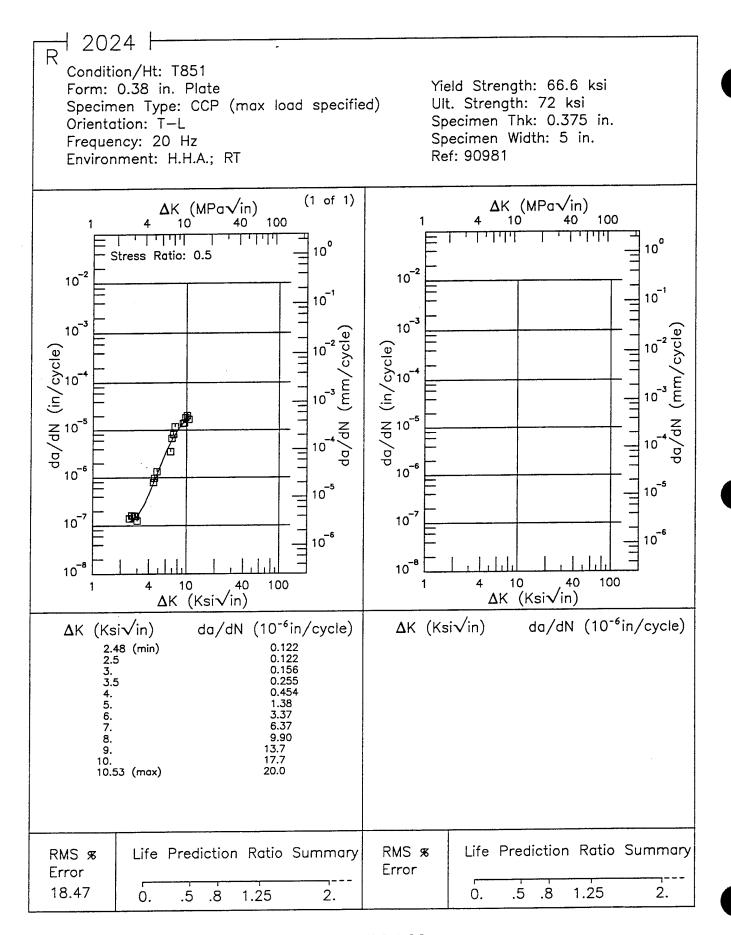


Figure 7.5.3.1.96

1 2024 F

Condition/Ht: T851 Form: 0.75 in. Plate

Specimen Type: CCP (max load specified)

Orientation: T—L Frequency: 20 Hz

Environment: 3.5% NACL; RT

Yield Strength: 68.6 ksi Ult. Strength: 73 ksi Specimen Thk: 0.76 in. Specimen Width: 5 in.

Ref: 90981

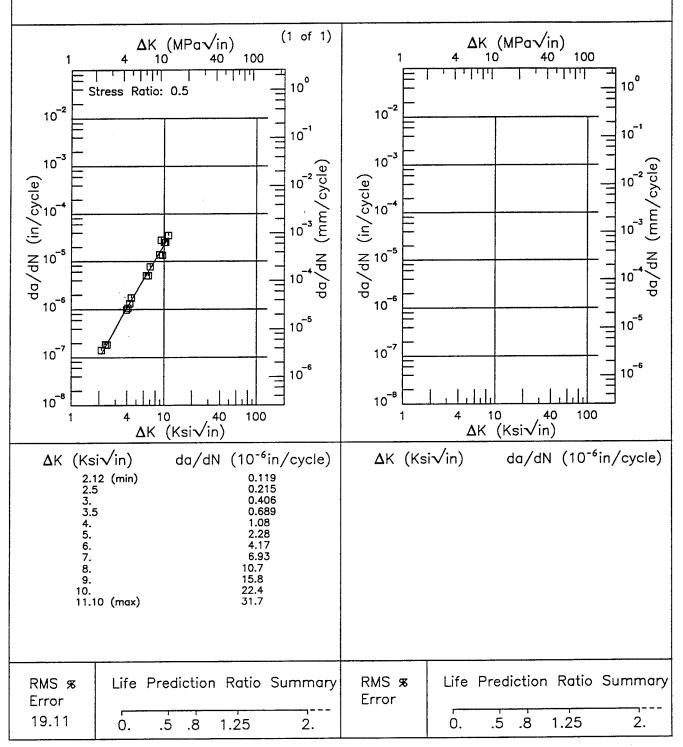


Figure 7.5.3.1.97

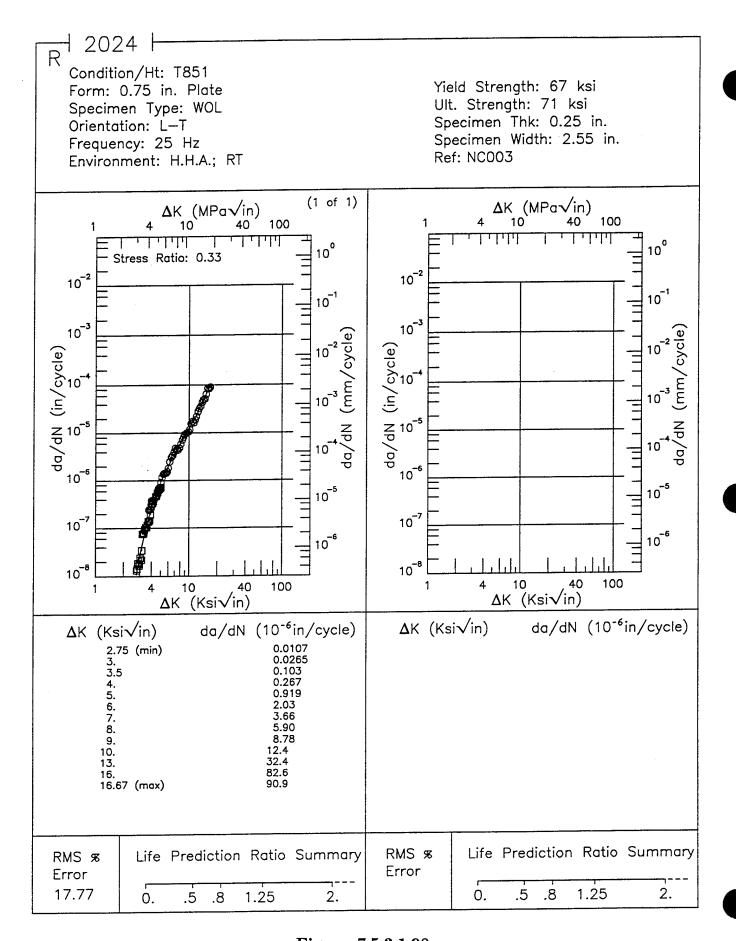
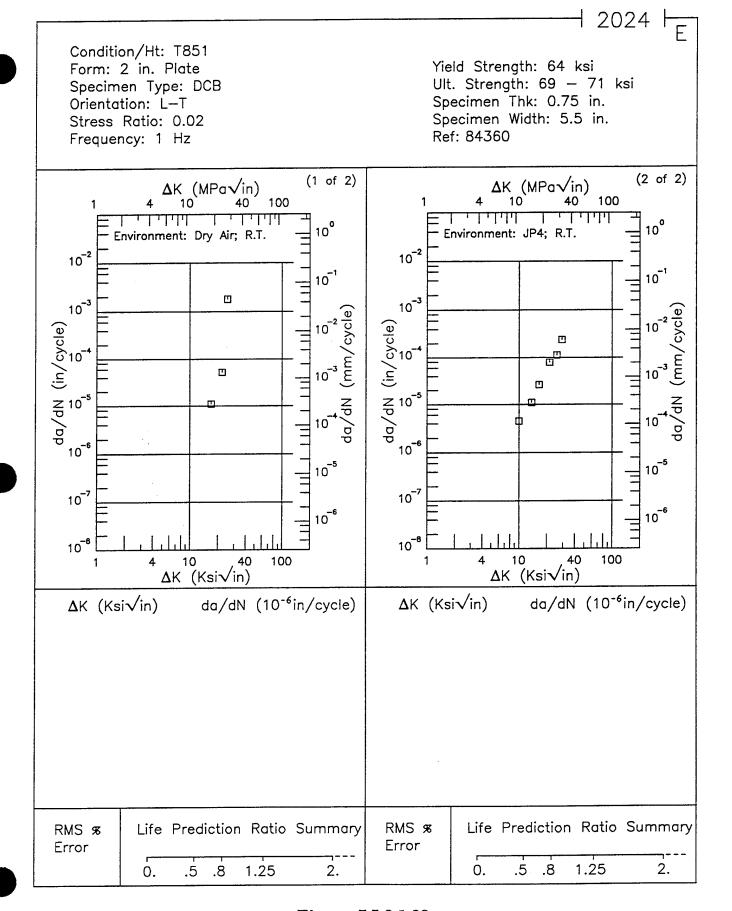


Figure 7.5.3.1.98



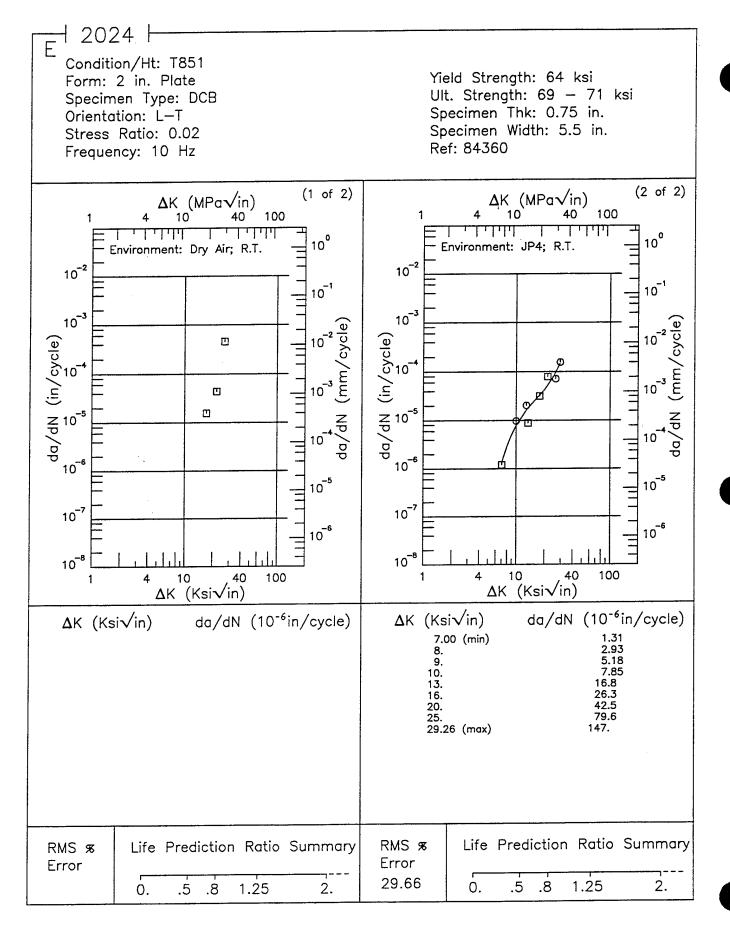


Figure 7.5.3.1.100

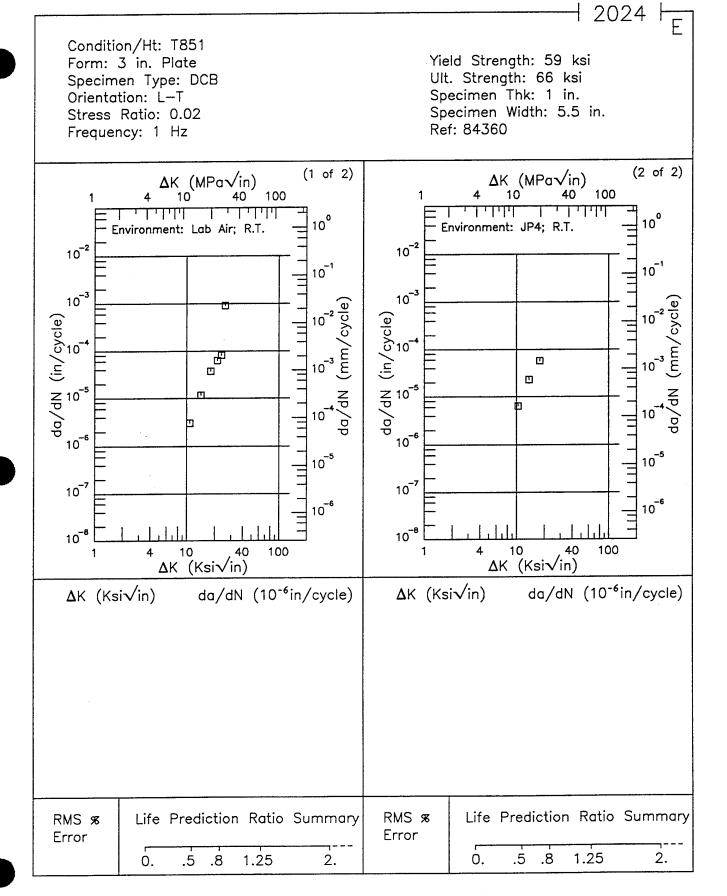


Figure 7.5.3.1.101

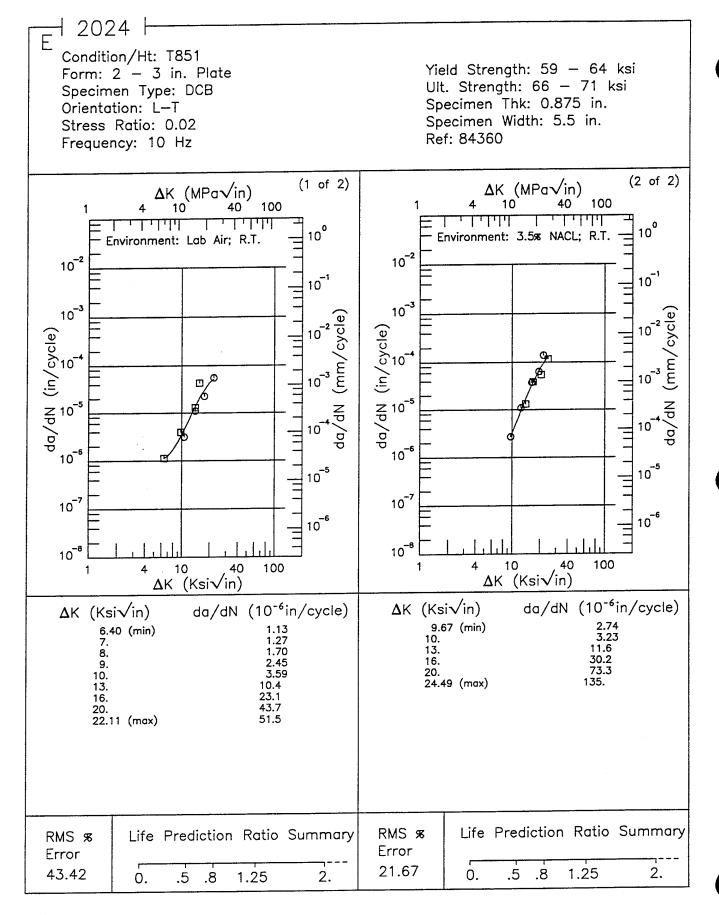
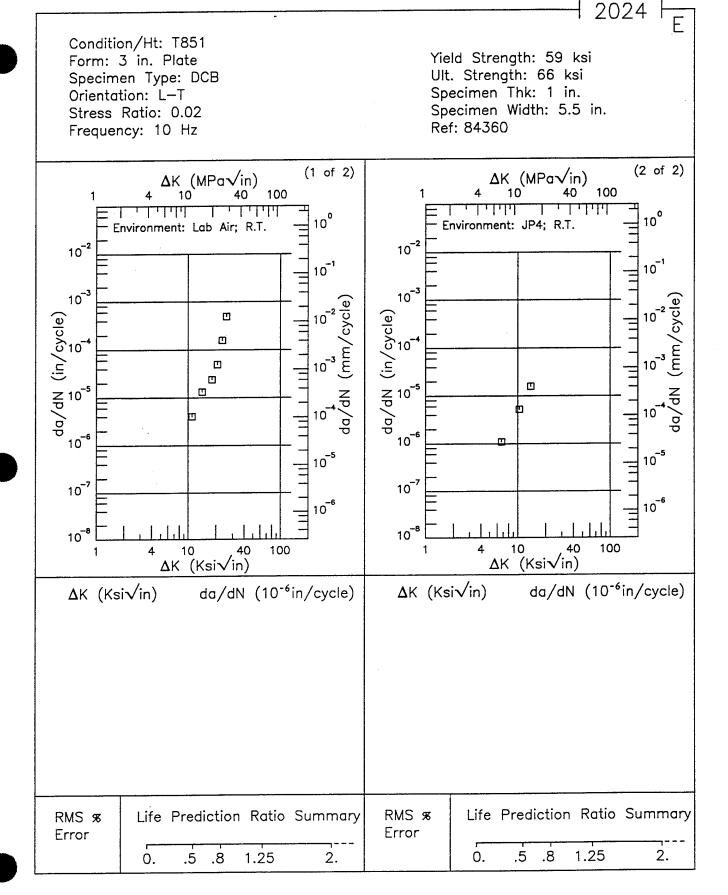
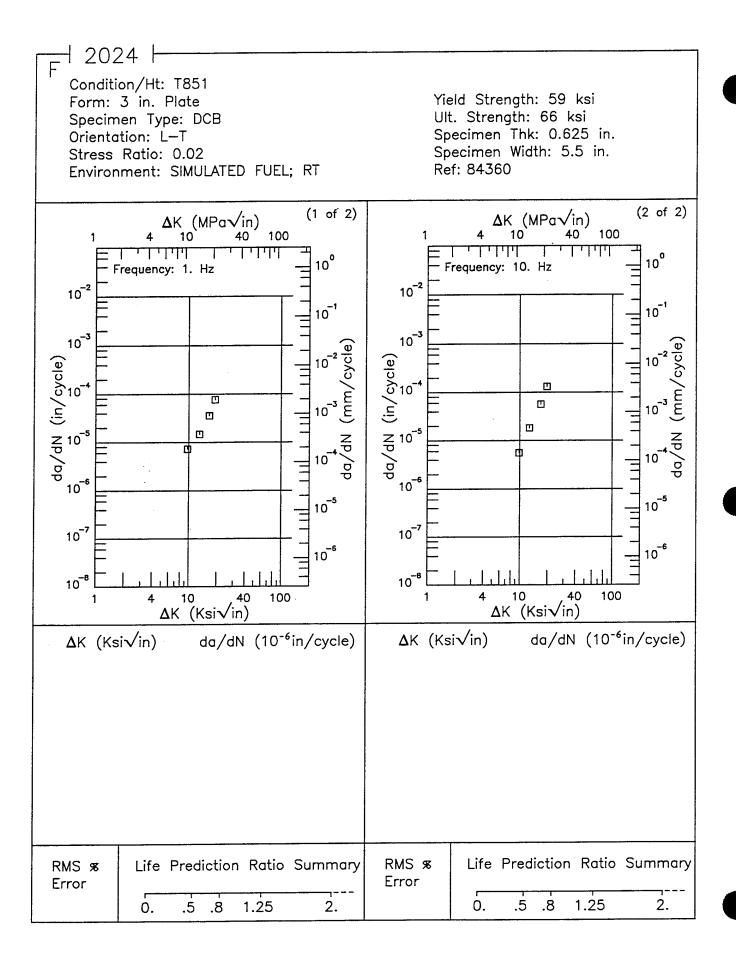


Figure 7.5.3.1.102





Condition/Ht: T851 Yield Strength: 59 - 64 ksi Form: 2 - 3 in. Plate Ult. Strength: 66 - 71 ksi Specimen Type: DCB Specimen Thk: 0.875 in. Orientation: L-T Specimen Width: 5.5 in. Frequency: 1 Hz Ref: 84360 Environment: 3.5% NACL; RT (1 of 1) ΔK (MPa√in) Δ K (MPa \sqrt{in}) 10 100 100 40 1 1 1 1 1 1 1 1 10° 10° Stress Ratio: 0.02 10-2 10-2 10⁻¹ 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10-6 10-6 10⁻⁵ 10 -5 10⁻⁷ 10⁻⁷ 10-6 10⁻⁶ 10⁻⁸ 10 8 100 10 40 100 10 40 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 9.58 (min) 10. 13. 16. 67.6 363. 20. 24.72 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 16.58 1.25 Ö. 0. .5 .8 2. .5 .8 1.25 2.

1 2024 H

Figure 7.5.3.1.105

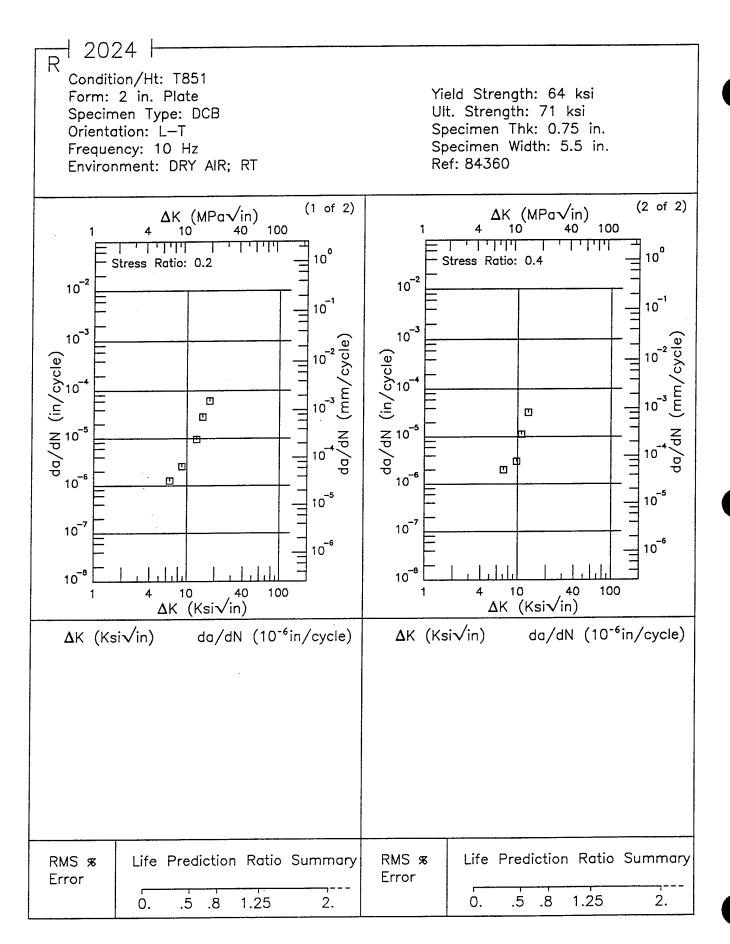


Figure 7.5.3.1.106

1 2024 H Condition/Ht: T851 Yield Strength: 70.1 ksi Form: 0.38 in. Plate Ult. Strength: 73.5 ksi Specimen Type: PTSF (max stress specified) Specimen Thk: 0.374 - 0.377 in. Orientation: L-S Specimen Width: 5.004 - 5.006 in Frequency: 20 Hz Ref: 90981 Environment: H.H.A.; RT (1 of 1) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 10 100 10 40 100 ليليليل 10° 10° Stress Ratio: 0.1 10-2 10⁻² 10-1 10 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10 -5 10⁻⁵ 10⁻⁷ 10⁻⁷ 10 6 10 6 10⁻⁸ 10⁻⁸ 40 100 10 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) Δ K (Ksi \sqrt{in}) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 0.751 1.27 5.47 (min) 6. 7. 8. 2.86 4.86 6.18 6.28 10. 7.82 15.84 (max) 15.6 RMS % Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary Error Error 8.30

Figure 7.5.3.1.107

0.

.5 .8 1.25

2.

2.

0.

.5 .8 1.25

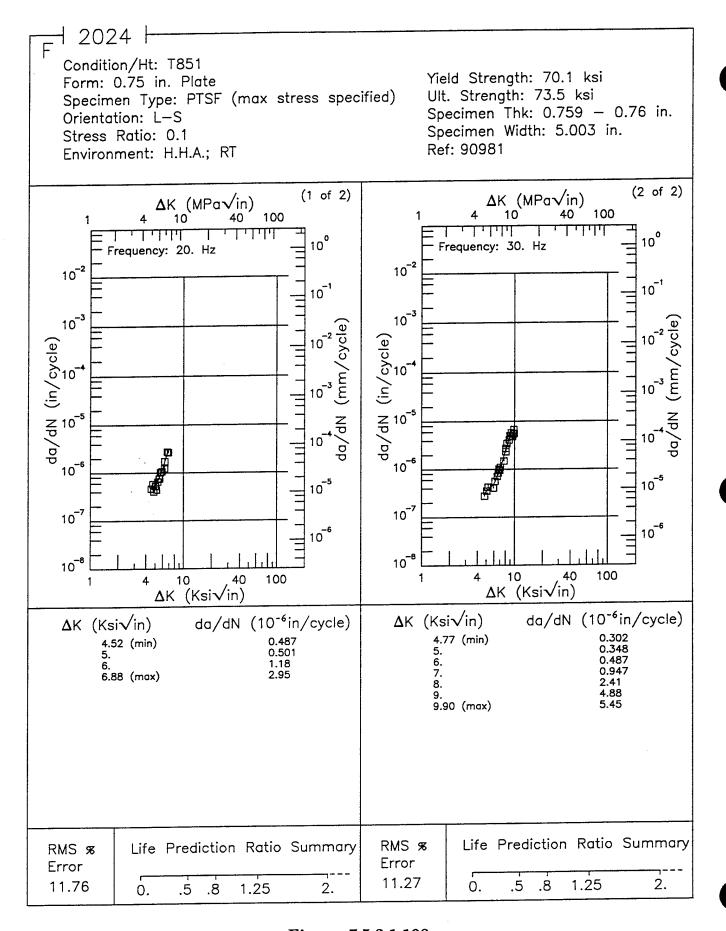


Figure 7.5.3.1.108

Condition/Ht: T851 Yield Strength: 70.1 ksi Form: 0.75 in. Plate Ult. Strength: 73.5 ksi Specimen Type: PTSF (max stress specified) Specimen Thk: 0.759 in. Orientation: T-SSpecimen Width: 5.004 - 5.006 in Frequency: 2 Hz Ref: 90981 Environment: H.H.A.; RT (2 of 2) (1 of 2) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 100 10 40 10 40 100 TTTTT1 1 1 1 1 1 1 1 10⁰ 10° Stress Ratio: 0.5 Stress Ratio: 0.1 10-2 10-2 10-1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10 -5 10 -5 10⁻⁷ 10⁻⁷ 10⁻⁶ 10 6 10⁻⁸ 10 8 10 40 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) **Δ**K (Ksi√in) da/dN (10⁻⁶in/cycle) 4.50 (min) 0.616 7.64 9.86 11.66 (min) 0.690 13. 16. 5. 6. 7. 8. 19.7 52.3 18.52 (max) 9. 10. 10.47 (max) Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error 14.20 18.68 .5 .8 1.25 2. 0. 0. .5 8. 1.25 2.

1 2024 F

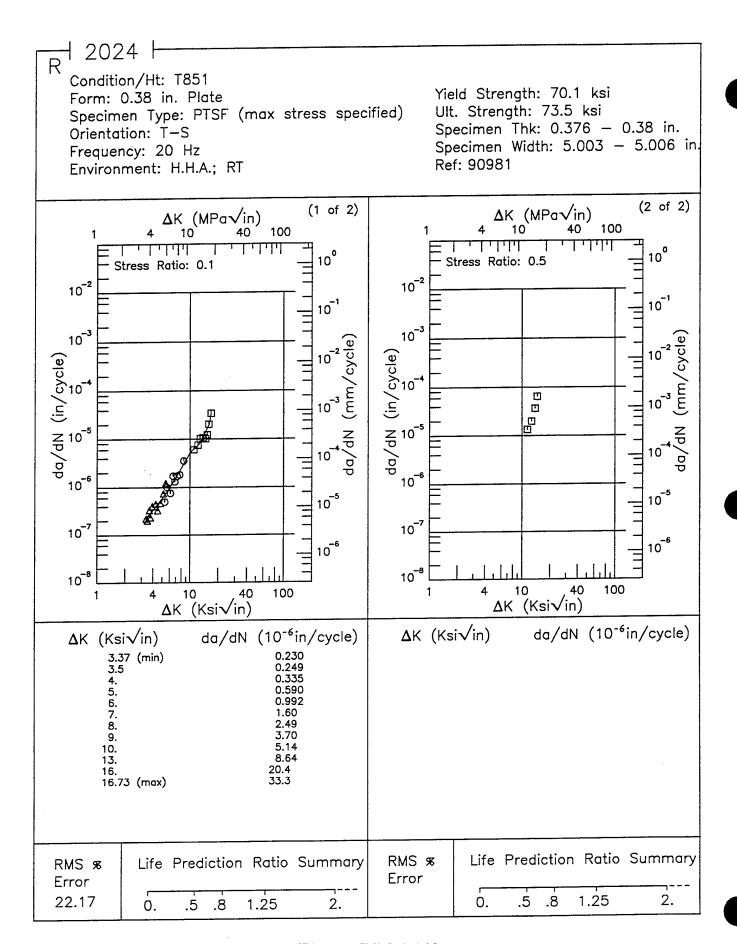


Figure 7.5.3.1.110

Condition/Ht: T851
Form: 0.75 in. Plate
Specimen Type: PTSF (max stress specified)
Orientation: T-S
Frequency: 20 Hz
Environment: H.H.A.; RT

Condition/Ht: T851
Yield Strength: 70.1 ksi
Ult. Strength: 73.5 ksi
Specimen Thk: 0.758 - 0.764 in.
Specimen Width: 5 - 5.005 in.
Ref: 90981

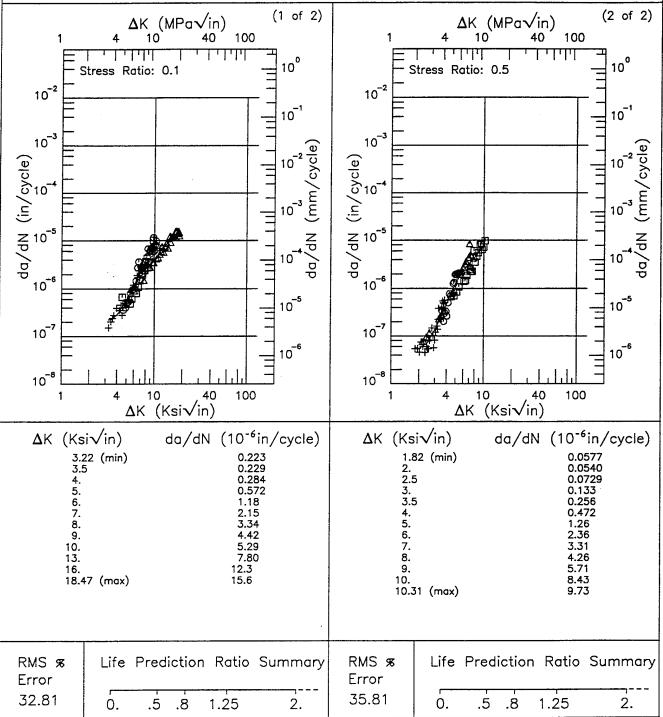


Figure 7.5.3.1.111

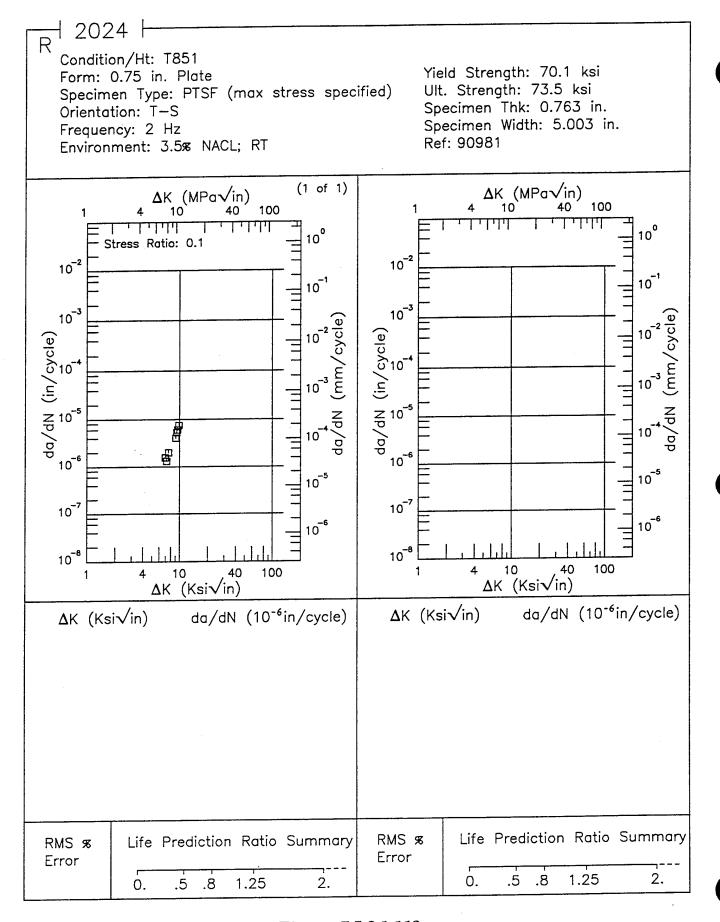


Figure 7.5.3.1.112

1 2024 | R Condition/Ht: T851 Yield Strength: 70.1 ksi Form: 0.75 - 0.76 in. Plate Specimen Type: PTSF (max stress specified) Ult. Strength: 73.5 ksi Specimen Thk: 0.759 - 0.763 in. Orientation: T-S Specimen Width: 5 - 5.005 in. Frequency: 20 Hz Ref: 90981 Environment: 3.5% NACL; RT (1 of 2)(2 of 2) Δ K (MPa \sqrt{in}) ΔK (MPa√in) 10 100 100 ليليانيا 10° 10° Stress Ratio: 0.5 Stress Ratio: 0.1 10 -2 10-2 10-1 10 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10 2 10⁻⁶ 10⁻⁶ 10 -5 10⁻⁵ 10⁻⁷ 10⁻⁷ 10⁻⁶ 10 6 10⁻⁸ 10-8 100 10 40 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 5.20 (min) 0.854 1.85 6.40 (min) 6. 7. 7. 8. 9. 10. 8. 9. 10. 13. 13. 17.38 (max) 16. 20. 20.76 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS \$8

Figure 7.5.3.1.113

2.

Error 23.66

.5

.8

0.

1.25

2.

Error

16.38

.5 .8

0.

1.25

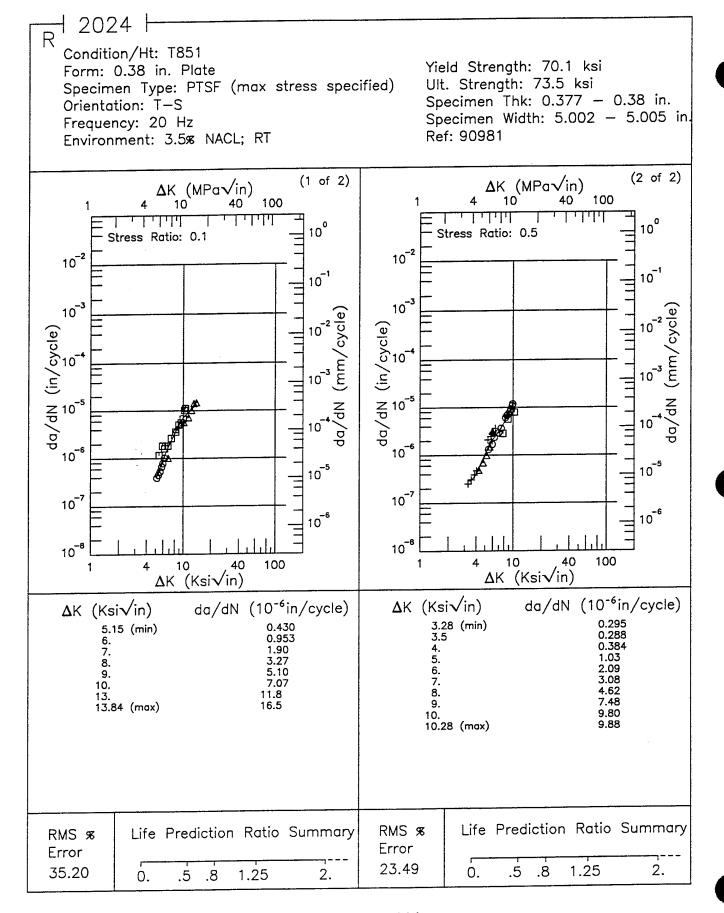


Figure 7.5.3.1.114

1 2024 |R

Condition/Ht: T851 Form: 0.75 in. Plate

Specimen Type: PTSF (max stress specified)

Orientation: T-S Frequency: 20 Hz

Environment: 3.5% NACL; RT

Yield Strength: 70.1 ksi Ult. Strength: 73.5 ksi Specimen Thk: 0.75 in. Specimen Width: 5 in.

Ref: 90981

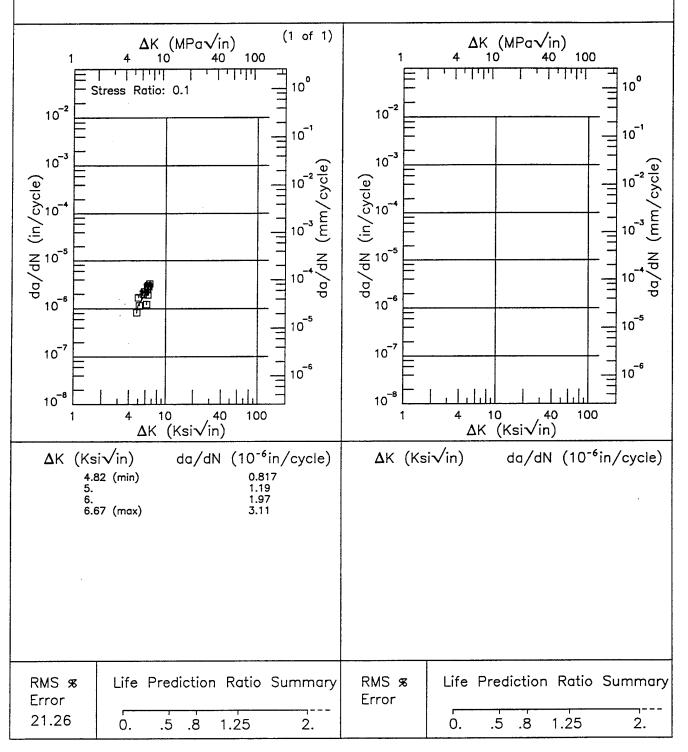


Figure 7.5.3.1.115

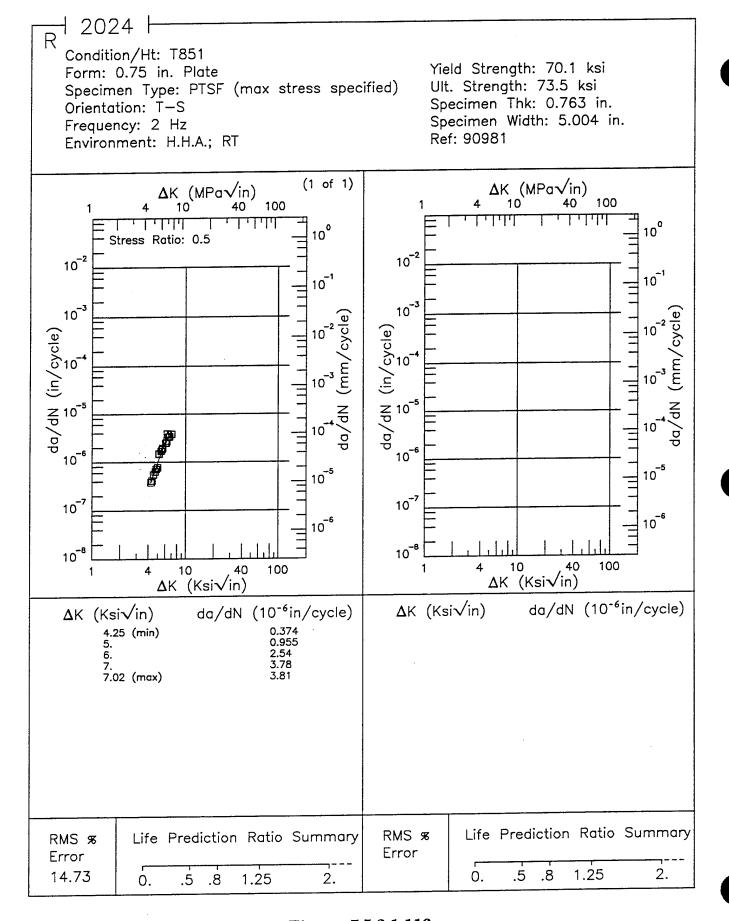


Figure 7.5.3.1.116

1 2024 F

Condition/Ht: T852 Form: 3 in. Forging Specimen Type: CT

Orientation: L—T Stress Ratio: 0.08

Environment: DRY AIR; RT

Yield Strength: 53 ksi Ult. Strength: 70 ksi

Specimen Thk: 1 - 1.002 in.

Specimen Width: 7.4 in.

Ref: 85837

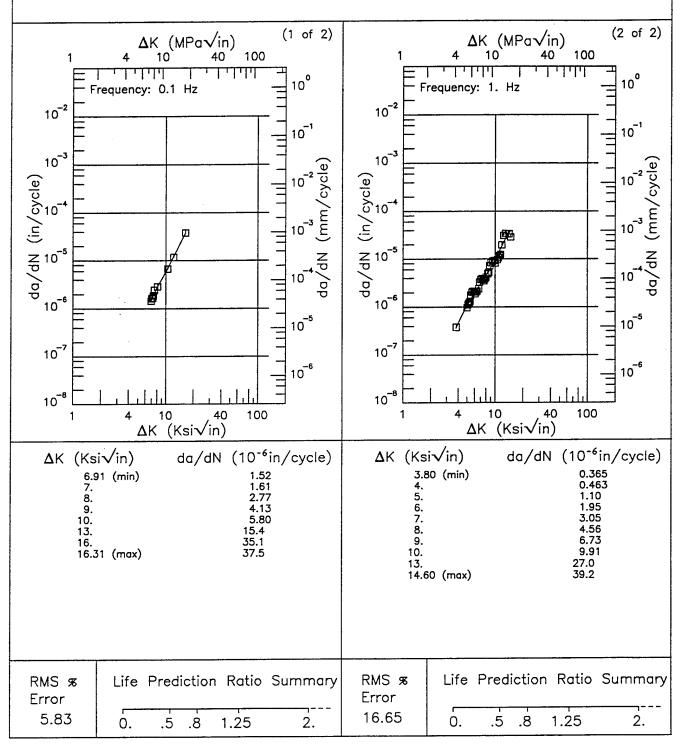


Figure 7.5.3.1.117

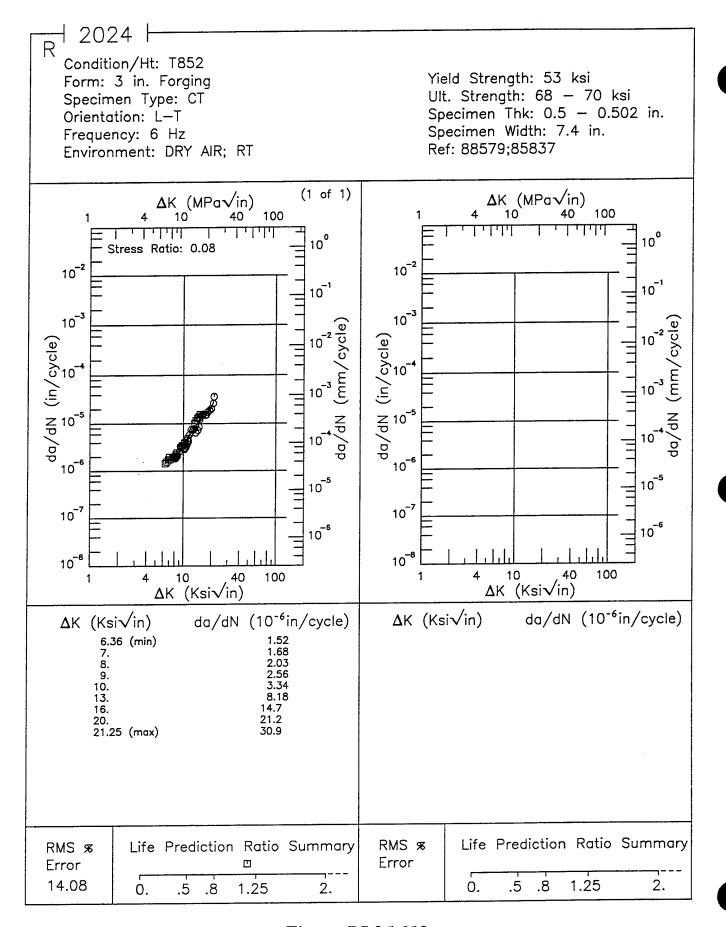


Figure 7.5.3.1.118

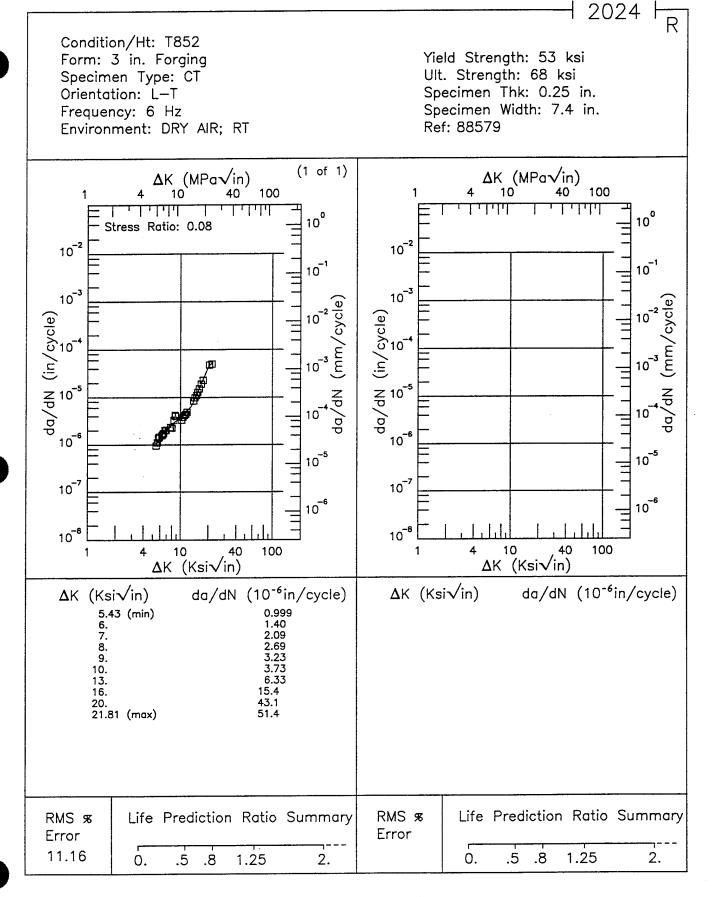


Figure 7.5.3.1.119

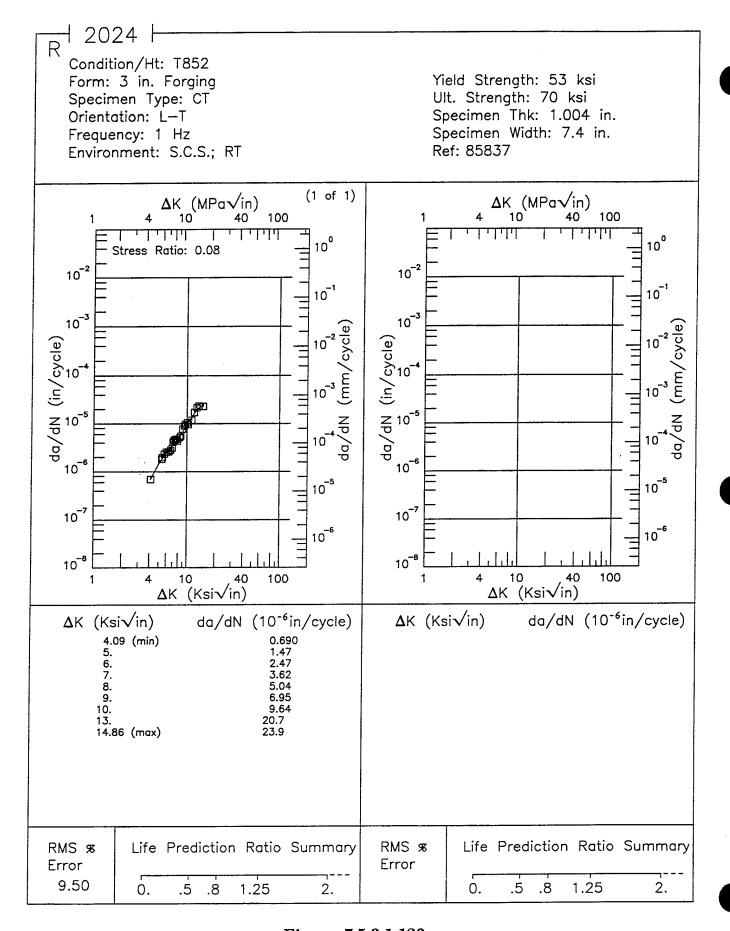
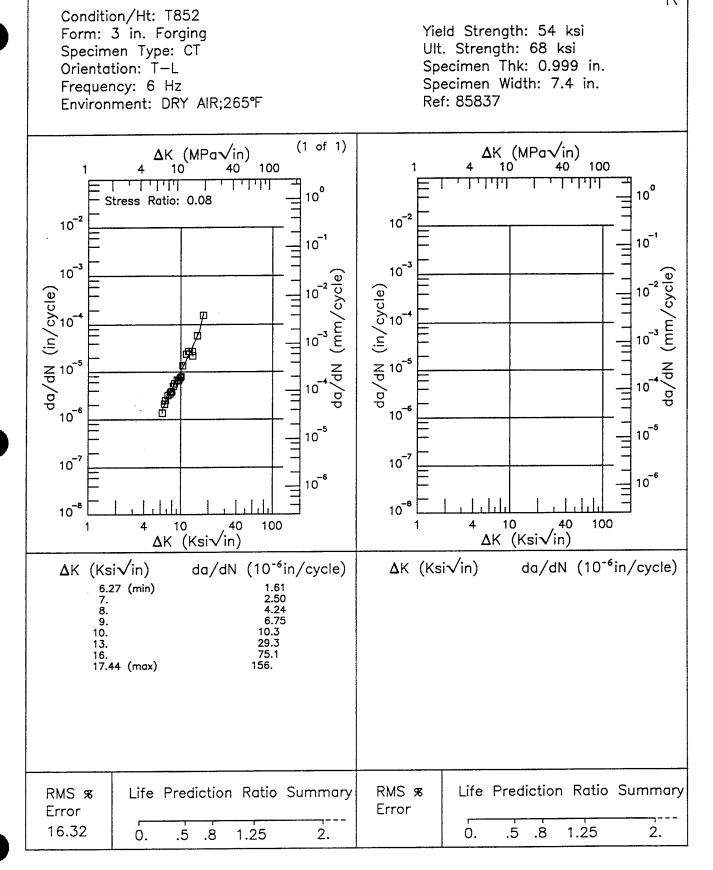


Figure 7.5.3.1.120



1 2024 F

Figure 7.5.3.1.121

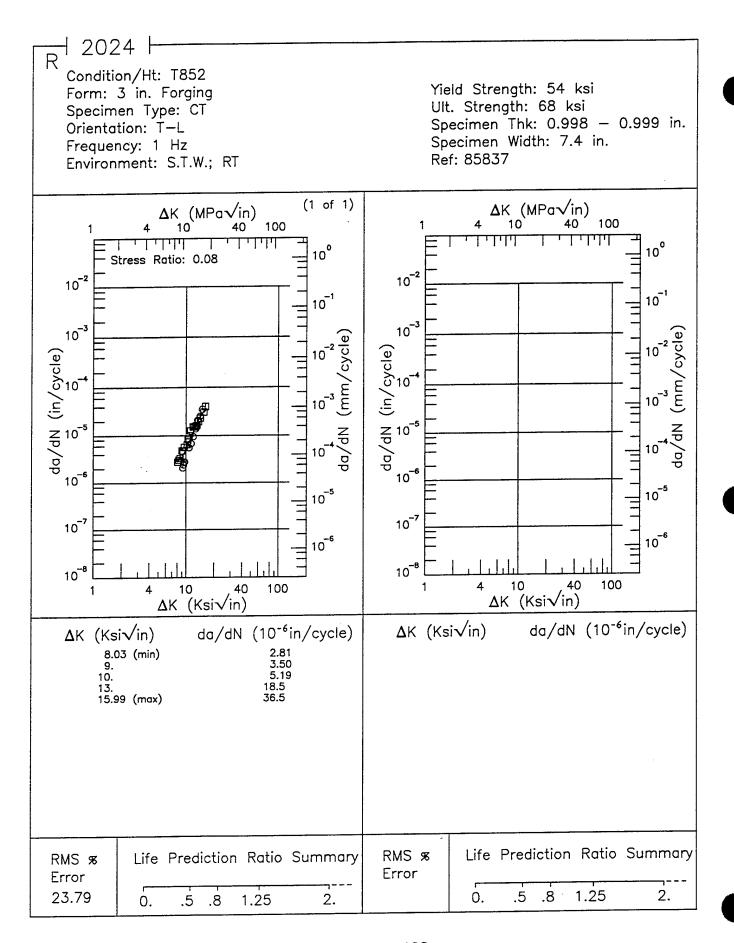


Figure 7.5.3.1.122

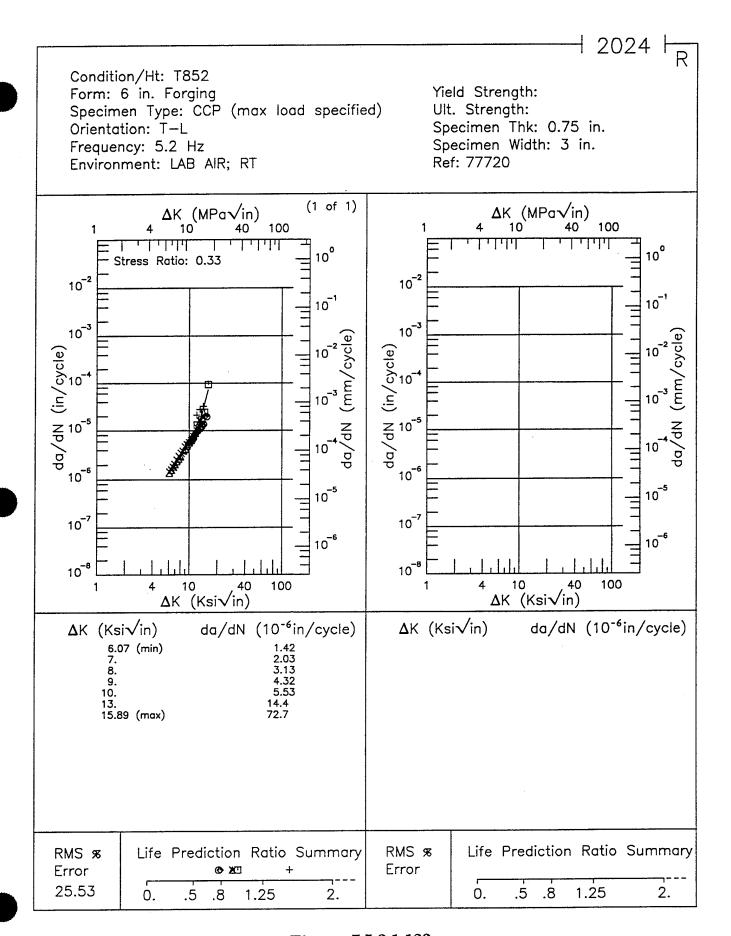


Figure 7.5.3.1.123

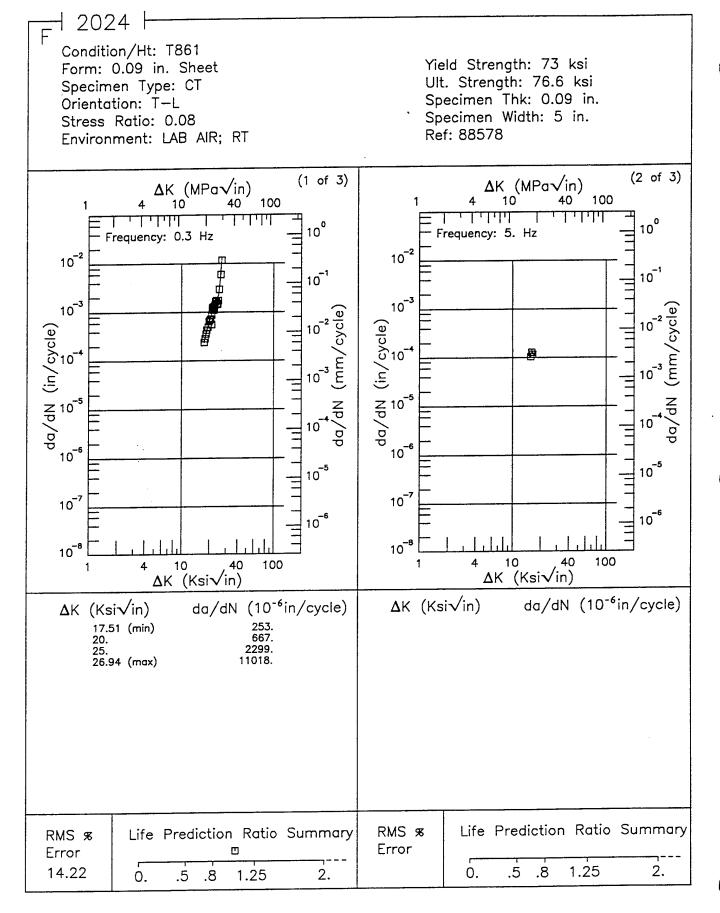


Figure 7.5.3.1.124

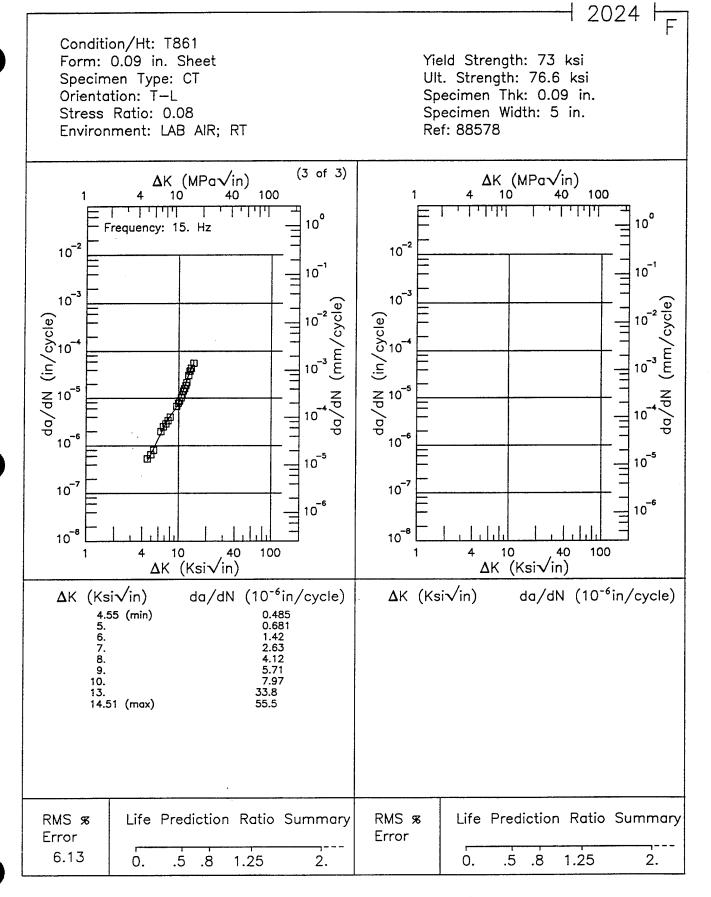


Figure 7.5.3.1.124 (Concluded)

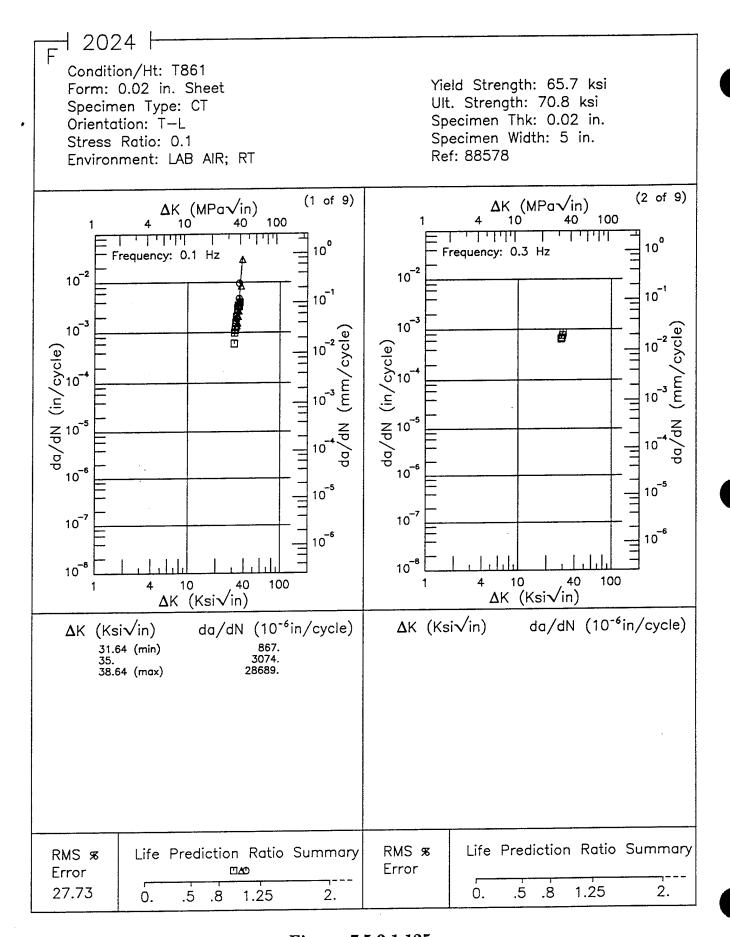


Figure 7.5.3.1.125

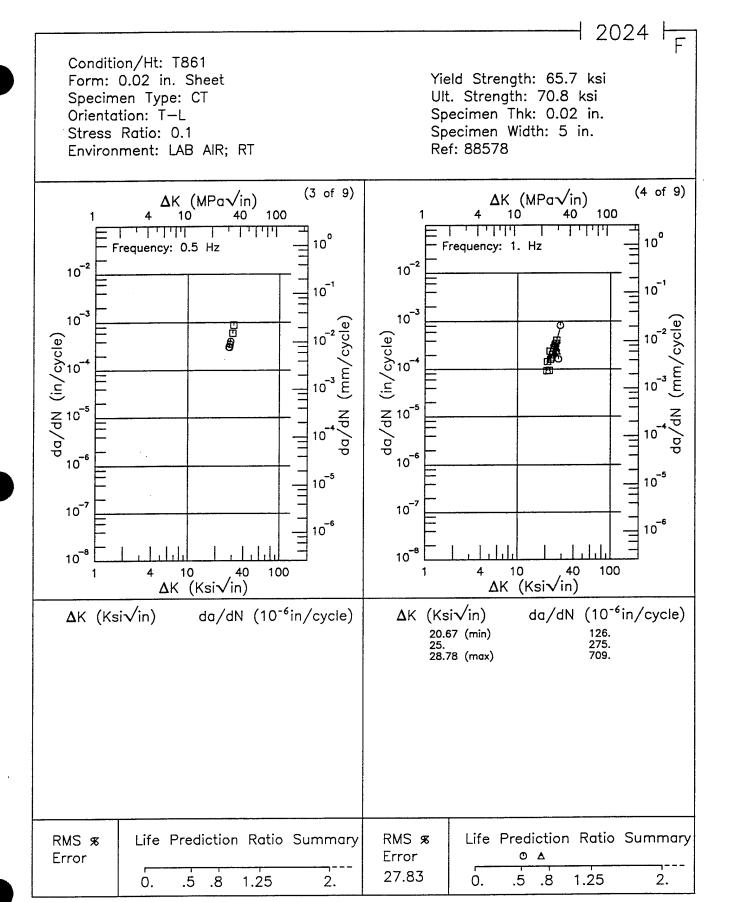


Figure 7.5.3.1.125 (Continued)

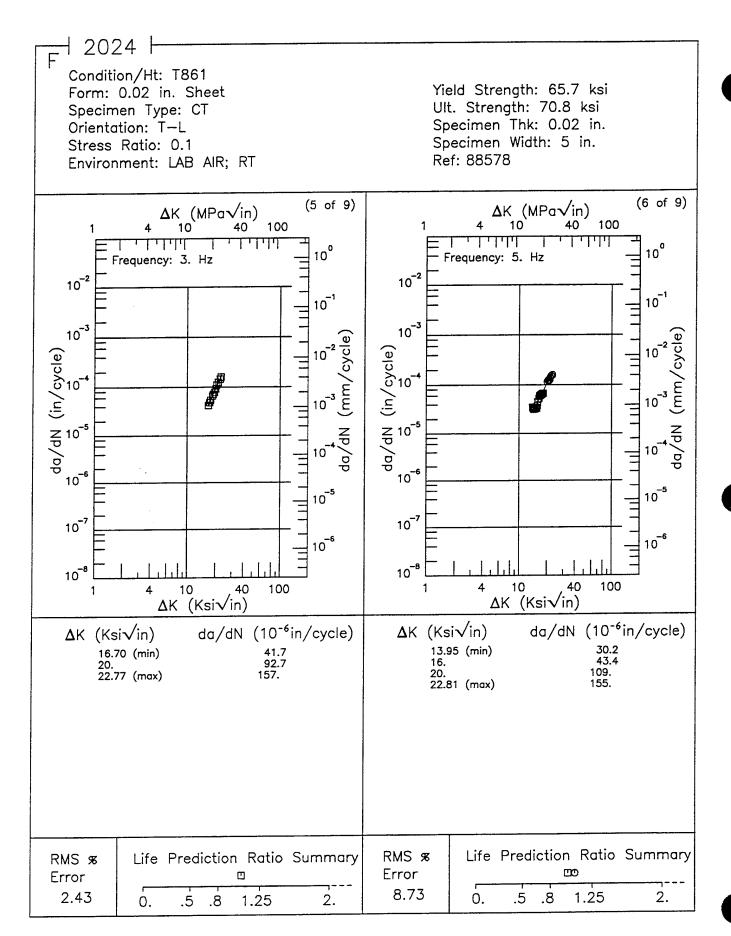


Figure 7.5.3.1.125 (Continued)

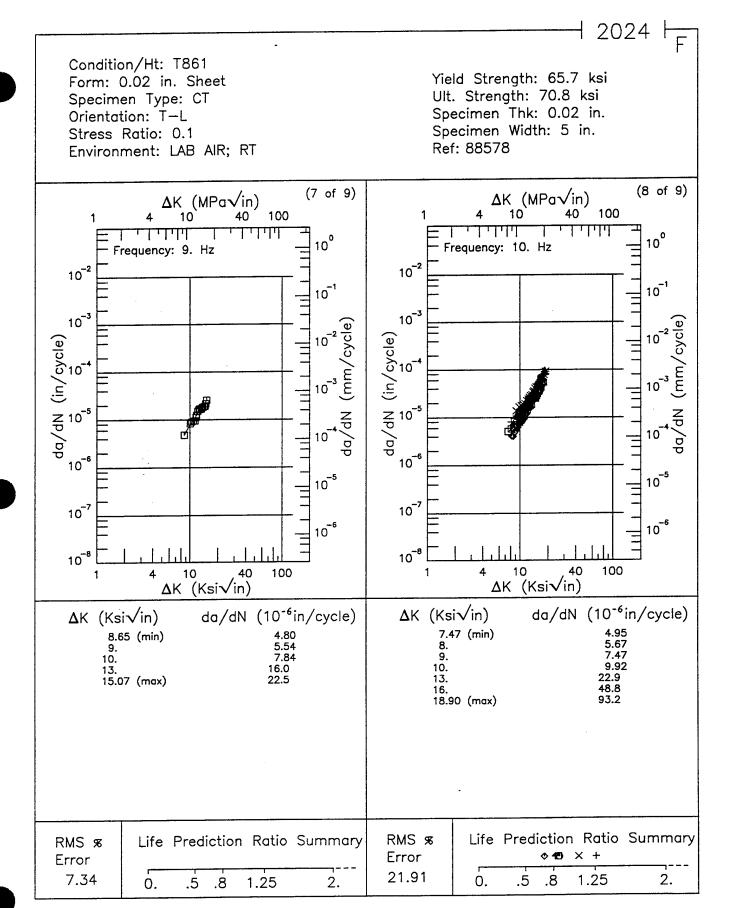


Figure 7.5.3.1.125 (Continued)

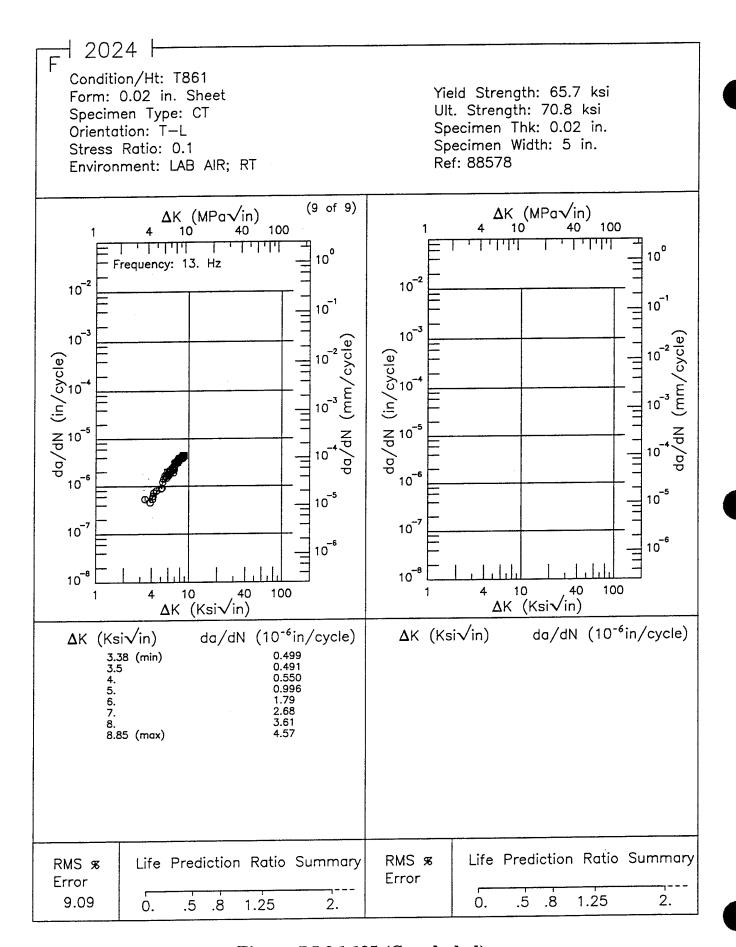


Figure 7.5.3.1.125 (Concluded)

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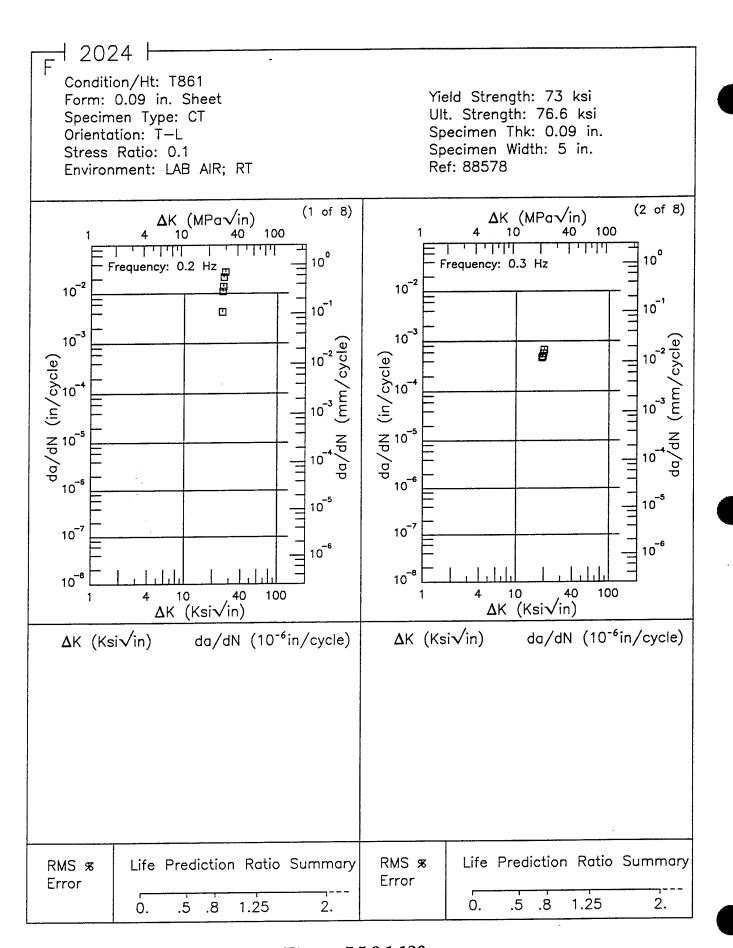


Figure 7.5.3.1.126

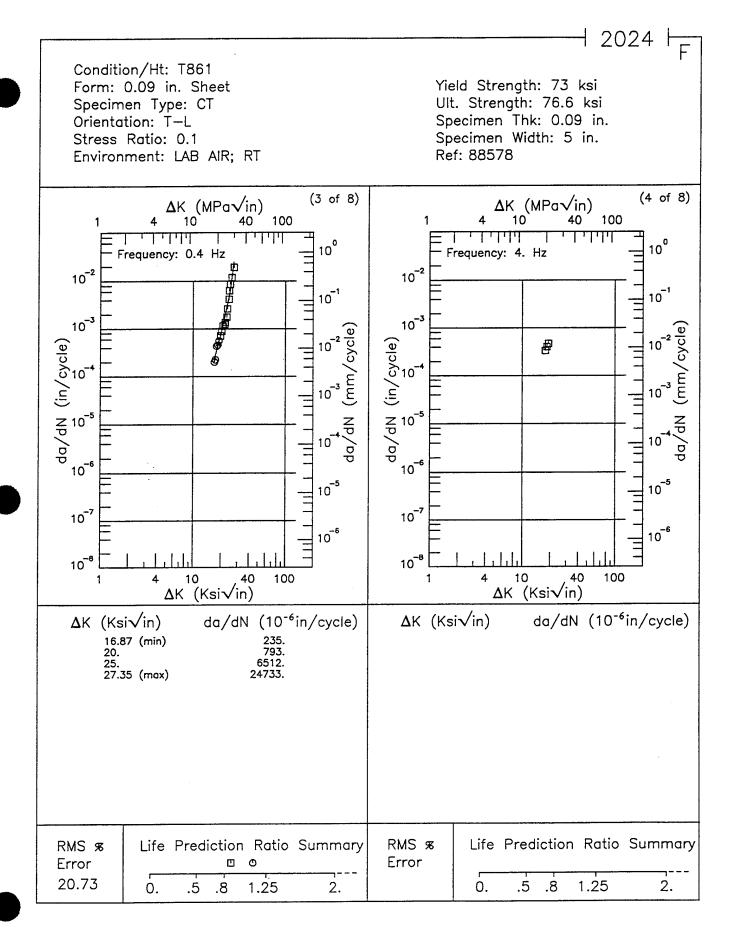


Figure 7.5.3.1.126 (Continued)

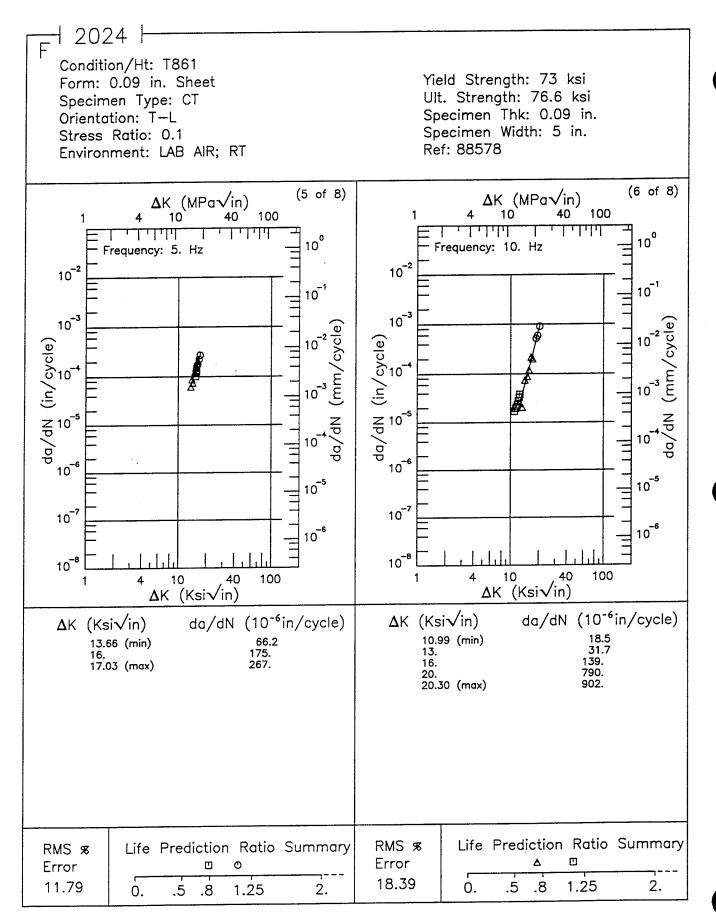


Figure 7.5.3.1.126 (Continued)

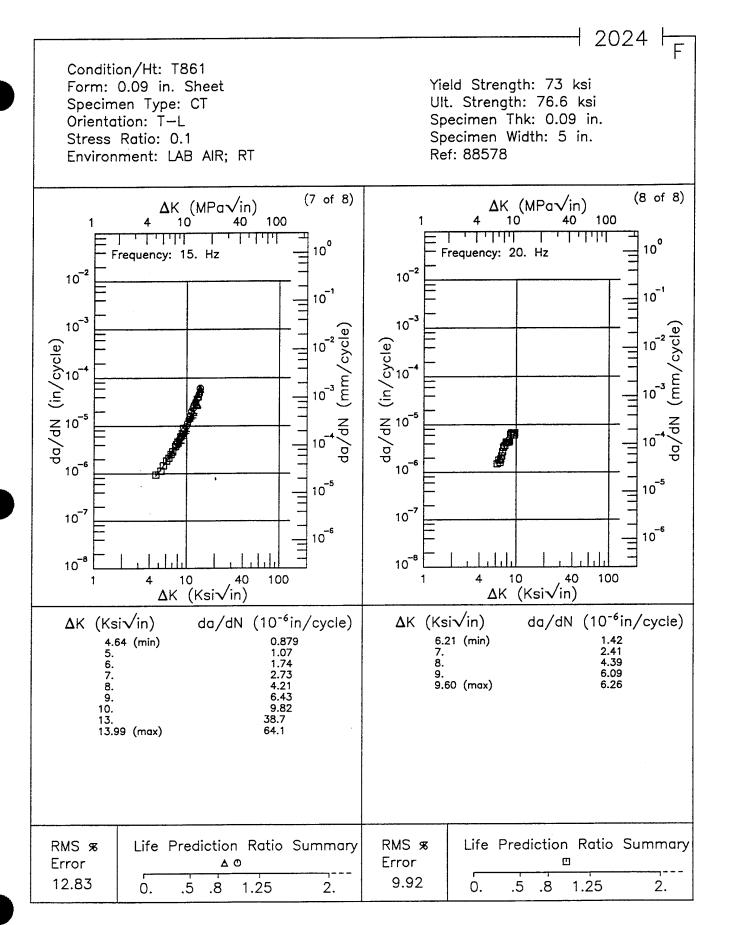


Figure 7.5.3.1.126 (Concluded)

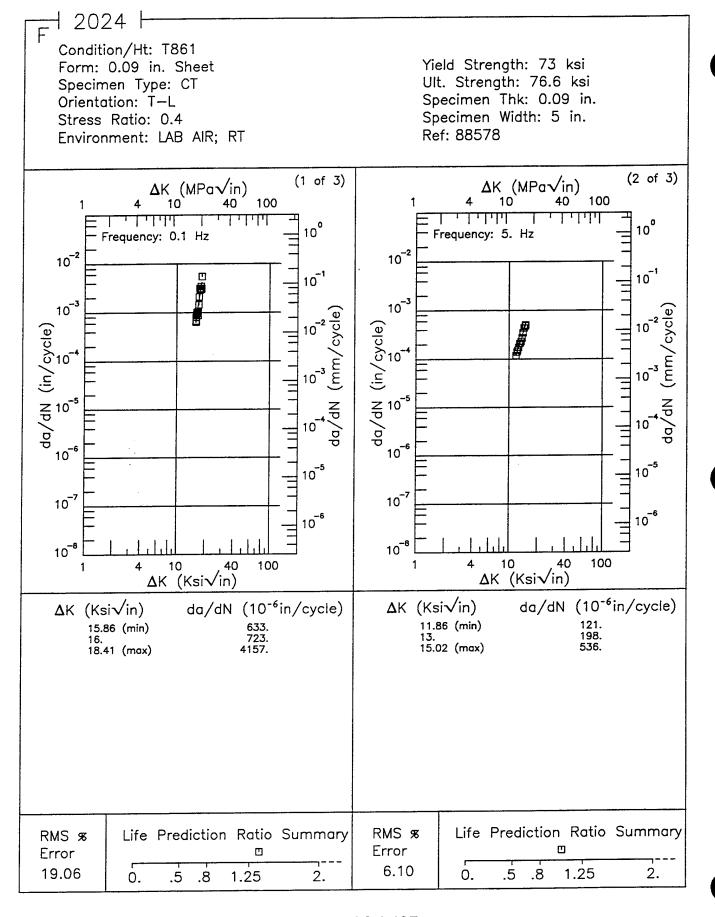


Figure 7.5.3.1.127

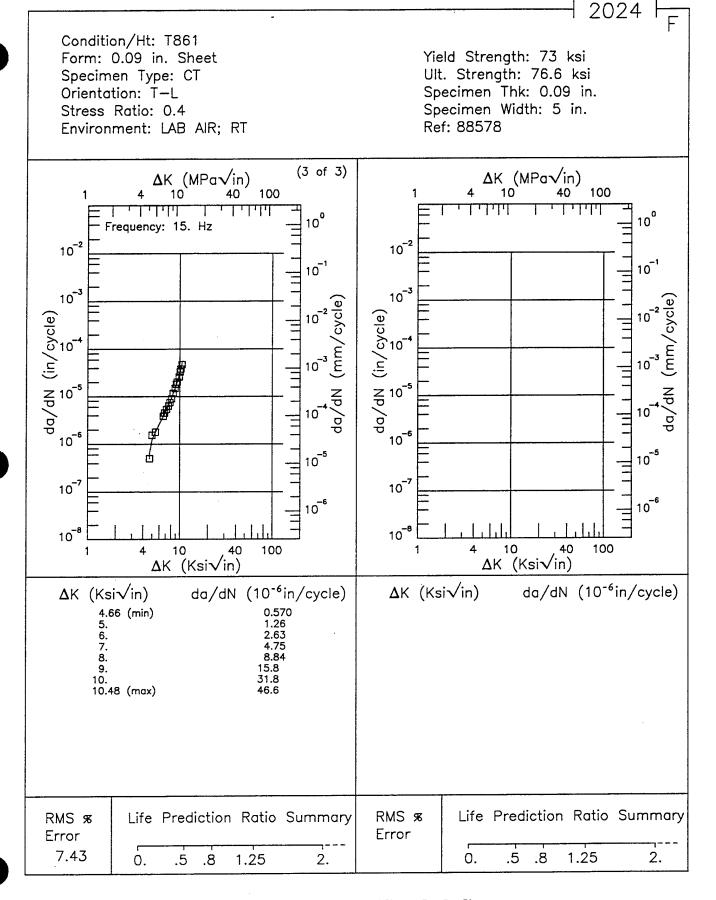


Figure 7.5.3.1.127 (Concluded)

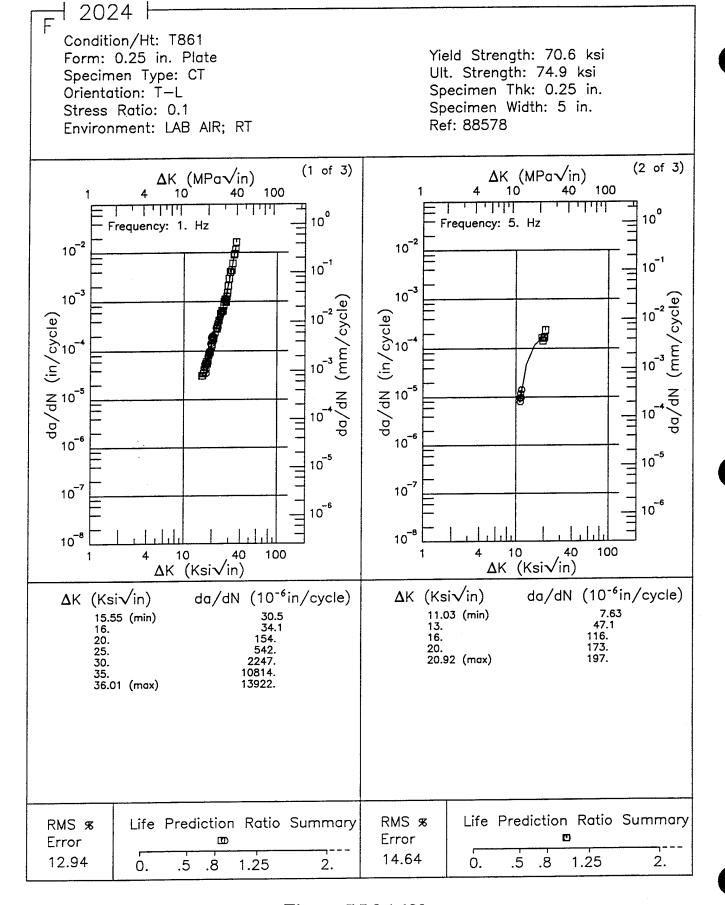


Figure 7.5.3.1.128

Condition/Ht: T861 Form: 0.25 in. Plate Yield Strength: 70.6 ksi Ult. Strength: 74.9 ksi Specimen Type: CT Specimen Thk: 0.25 in. Orientation: T-L Specimen Width: 5 in. Stress Ratio: 0.1 Ref: 88578 Environment: LAB AIR; RT (3 of 3)ΔK (MPa√in) 10 40 ΔK (MPa \sqrt{in}) 100 10 100 40 للتليك 10° Frequency: 10. Hz 10-2 10-2 10-1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10⁻⁵ 10⁻⁵ 10⁻⁷ 10⁻⁷ 10 6 10⁻⁶ 10⁻⁸ 10-8 40 100 10 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) da/dN ($10^{-6}in/cycle$) $da/dN (10^{-6}in/cycle)$ ΔK (Ksi√in) **Δ**K (Ksi√in) 9.69 (min) 10. 6.36 6.94 13. 16. 17.41 (max) 88.6 Life Prediction Ratio Summary RMS % RMS % Life Prediction Ratio Summary <u>™</u> 0 Error Error 15.29 Ö. .5 .8 1.25 2. .5 1.25 2. 0. 8.

1 2024 F

Figure 7.5.3.1.128 (Concluded)

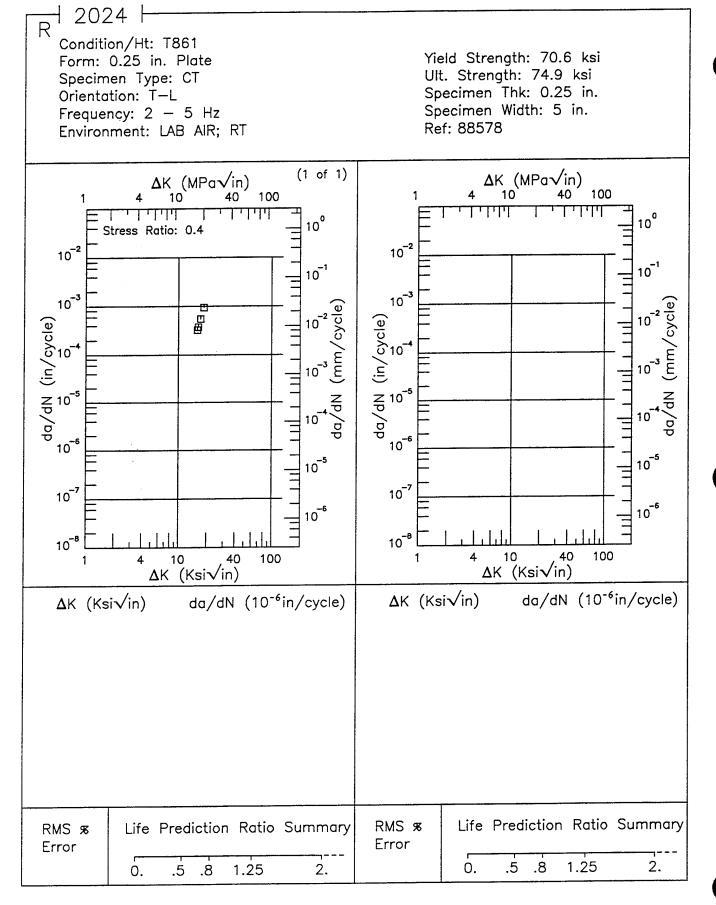


Figure 7.5.3.1.129

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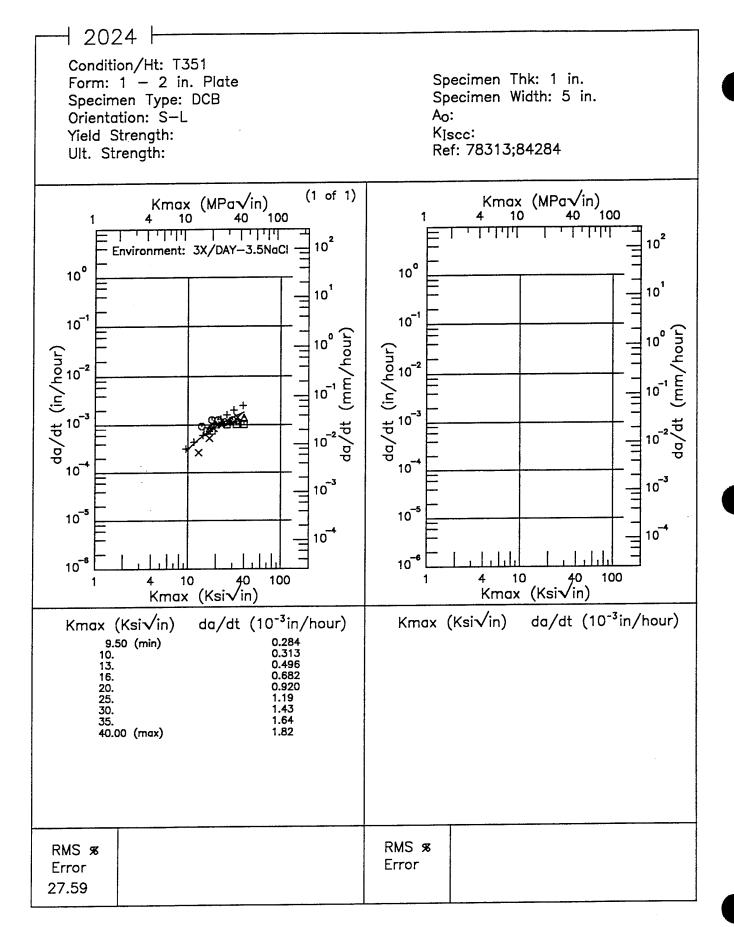


Figure 7.5.3.2.1

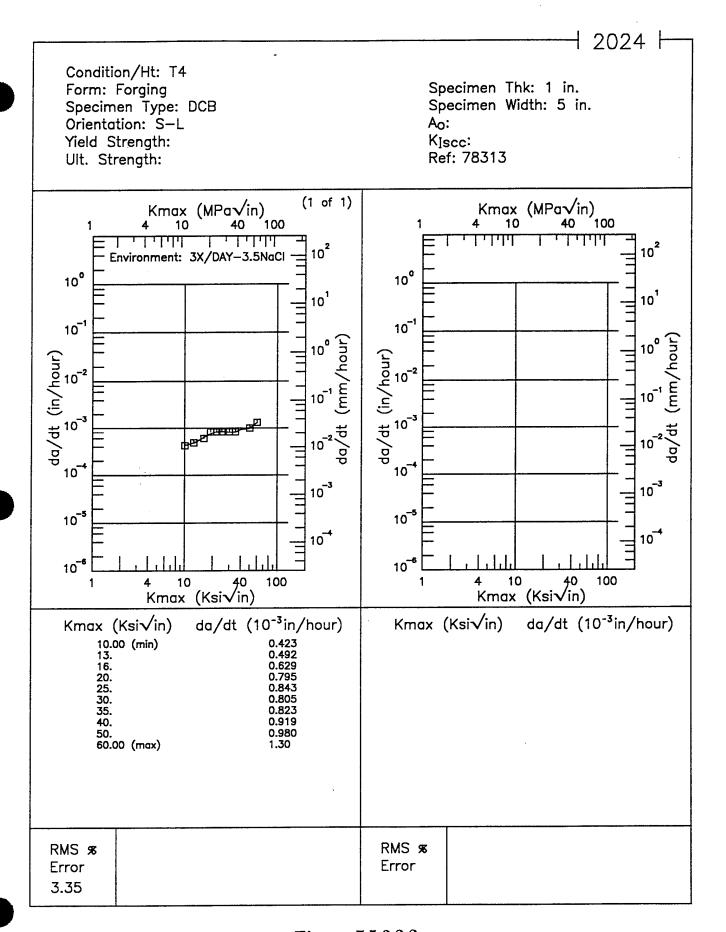


Figure 7.5.3.2.2

TABLE 7.5.3.3

K_{Isce} SUMMARY FOR ALUMINUM ALLOY 2024

7 1:4:	7 -6	Test	8				Specimen	1	Prod		ì		Test	·	
Condition From Heat Treat Form	Form	Temp (°F)	Or.	Str (Ksi)	Environment	Thick (in)	Design	Width (in)	Thk (in)	Crack (in)	ne (Ksi√in)	^{N_{Inco} (Ksi√in)}	Time (min)	Test	Reference
				47	3.5% NaCl	1	DCB	\$	1		50	10	;	1969	78313
					Industrial Atm	1	CT	2	2.5		21.2	10	i	1973	88998
T351	Ъ	R.T.	S-L	42.4	Salt-Dichromate- Acetate	1	CT	2	2.5		212	G.	1	1973	86688
					Seacoast Atm	1	L	2	2.5	i	21.2	10	ŀ	1973	86688
T352	ম	R.T.	S-L	43.3	Senwater	0.7	DCB	1.4	9		27.6	23+	1	1972	82675
					3.5% NaCl	1.25	TDCB	2	3.2		18.6	21.5	i	1971	84360
			E	0.00	Air 78% RH	1.25	TDCB	2	32		18.6	22.7		1971	84360
			<u> </u>	03.0	Dist Water	1.25	TDCB	2	3.2		18.6	22	:	1971	84360
T851	<u></u>	R.T.			JP-4 Fuel	1.25	TDCB	2	3.2	•••	18.6	918	***	1971	84360
					Industrial Atm	1	cT	2	2.5	•	16.7	16		1973	86688
			S-L	61.8	Sait-Dichromate. Acetata	1	£5	2	2.5		16.7	15		1973	86688
					Seacoast Atm	1	$^{\mathrm{cr}}$	2	2.5		16.7	16		1973	88998
				, and	5 5 5	1	DCB	5.5	3		34	22.1	64920	1976	R1006
				3	O.C.O.	1	DCB	5.5	e	1	34	34*	08919	1978	RIOOG
T852	ᄄ	R.T.	L-T			11	DCB	5.5	3	i	37	22.5	76140	1976	R1006
				28	S.T.W.		DCB	5.5	အ	į	37	>23.5	76140	1976	RI006
						1	DCB	5.5	3	!	37	22.5	76140	1976	RI006

TABLE 7.5.3.3 (CONCLUDED)

K_{Isco} SUMMARY FOR ALUMINUM ALLOY 2024

	-	Test	,	Yield			Specimen		Prod	-	1	14	Test	E	
Condition/ Frod Heat Treat Form	Form	Temp (°F)	Spec Or.	Spec Str Or. (Ksi)	Environment	Thick (in)	Design	Width (in)	Thk (in)	Crack (in)	nq (Ksi√in)	Ksivin)	Time (min)	Date	Reference
						1	BOB	5.5	8		34	19.8	133680	1976	R1006
						1	DCB	5.5	8	ï	34	>21	133680	1976	R1006
,			1:1	54	ä.l.₩.	1	DCB	5.5	8		34	>21	133680	1976	RIOOS
T852 (cont'd)	F (cont'd)	F R.T.				1	DCB	5.5	8		34	20.5	133680	1976	R1006
						1	DCB	5.5	3	ï	37	20	133680	1976	RI006
			S-L	:	S.I.W.	FF.	DCB	5.5	3	÷	37	>13.5	133680	1976	R1006
:				53.9	Seawater	0.7	CANT	14	9	•	17.6	14		1972	82675

 * specimen thickness does not meet minimum requirements of $2.5~(rac{K_{loo}}{\sigma_{yy}})^2$

TABLE 7.6.1.2

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2024 (ALCLAD) AT ROOM TEMPERATURE

	100.0		
	10.		
	01		
	0.00	:	
	(e) (m)		
	3yC 1\frac{1}{4}	1	91
	infe Ess	21.01	62.46
4	79.		
ğ	FCGR (10 ⁻⁶ in/cycle) ΔK Level (Κάγlu) 10.0 20.0		_
_	Z (3.52	7.14
Ξ	TD X		
<u>z</u>	ν V		
Ĭ	1 6.0		
Ž	ũ		
5			_
Ħ	2.5		
≥	24		
ENVIRONMENT: Lab Air			
-	FREQ (Hz)		
	E	13.3	13.3
٠.	T.J		
-			
	K	0	0.33
			١
	- H		
	PRODUCT		
	D.C.	ļ	SHEET
	55	į	
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ORIENTATION: I-L			
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	LL		
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2	CONDITION/ HEAT TREATMENT	ŧ	<u> </u>
	ZF		
3	25		l
	E.A.		
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1			

TABLE 7.6.2.2

	Ke	K, STAN DATE REFER		1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	1966 84366	
		K _o (Ksi√in)		68.66*	€8.66		59.32	ŧ	69.20	66.25*	62.79*	57.94*	74.05*	€9.86	71.47*	62.43*	69.35	65.82*	65.82*	67.20	64.13	
		STAN											i									-
	Kapp	K				,							:									7
K _c		K (Keivin)	ED	61.50	61.50	57.52*	51.82*	51.93*	61.21*	60.13*	67.52*	51.70	61.50	49.23	59.36*	49.45*	59.69*	58.22*	58.22*	56.26*	55.98*	
[LAD)	SS	MAX (Ksi)	ESTRAIN	37.30	37.30	41.20	46.00	46.10	22.50	22.10	41.20	45.90	37.30	43.70	36.00	43.90	36.20	21.40	21.40	40.30	40.10	
2024 (ALCLAD)	GROSS	ONSET (Kai) 0.	RDGES R	31.90	32.60		43.00	42.30	19.40	17.60	35.60	42.70	ı	:	i	40.30	33.30	15.90	17.20	36.70	36.60	
	CRACK LENGTH	FINAL (in.) 2a,	BUCKLING OF CRACK RDGES RESTRAINED	1.890	1.890	:	1.020	1	3.540	3.460	1.380	0.980	2.120	1.140	2.120	1.220	2.010	3.540	3.540	1.610	1.500	
INUM	CR	INIT (in.) 2a.	KLING O	1.580	1.580	1.180	0.790	0.790	3.150	3.150	1.180	0.790	1.580	0.790	1.580	0.790	1.580	3,150	3.150	1.180	1.180	
ALUMINUM	SPECIMEN	THICK (in.) B	BUC	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	
		WIDTH (In.) W		5.900	5.900	6.900	5.900	5.900	6.900	5.900	6.900	5.900	6.900	6.900	6.900	5.900	6.900	5.900	5.900	2.900	6.900	
	u iaix	STR (Kal)		50.1	50.1	50.1	50.1	50.1	60.1	50.1	50.1	50.1	50.1	50.4	50.4	50.4	50.4	50.4	50.4	50.4	60.4	
		SPEC						_					ż									
	1000	TEMP (°F)											R.T.									
	ucr	THICK (in.)		90.0	90.0	90.0	90.0	90.0	0.08	90.0	0.08	90:0	0.08	0.08	90.0	0.08	0.08	0.08	0.08	90.0	0.08	
	PRODUCT	FORM					<u> </u>	ا	1	1		1	Sheet			.						-
		CONDITION HEAT TREAT											ជ		•			,				_

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH, VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

TABLE 7.6.2.2 (CONTINUED)

						A	ALUMINUM	MON	2024	2024 (ALCLAD)	AD)	Кc							
	PRODUCT	UCT	Į.			SPECIMEN	MEN	CRACK	СК	GROSS	88		Kapp			K _c			
CONDITION HEAT TREAT	FORM	THICK (In.)	TEMP (°F)	SPRC		WIDTH 1	THICK (In.)	(n.) 2a.	FINAL (in.) 2a,	ONSET (Kal) °.	MAX (Kei)	K (Kelvin)	K	STAN	K _c (Keivin)	K _o MEAN	STAN	DATE	REFER
				•			BUCKI	ING OF	CRACK	BUCKLING OF CRACK EDGES RESTRAINED	STRAINE	Ω							
	4.	90'0			50.4	2.900	6.00	1.580	2.120	30.80	35.90	59.20*			71.27*			1966	84366
	A	90.08			50.4	2.900	0.079	0.790	1.180	39.30	43.10	48.55*			60.17			1966	84366
		0.08	-	<u>_</u>	81.1	2.900	0.079	3.150	3.580	20.60	21.30	57.95*			66.37			1966	84366
	.1	90.0			51.8	6.900	6.00	1.180	1.580	34.60	40.90	57.10*			67.44*			1966	84366
		90.0		اا	61.8	6.900	620.0	0.790	1.220	45.30	46.20	52.04			65.70*			1965	70485
	<u> </u>	90.0			51.8	5.900	620.0	0.790	1.140	43.10	44.00	49.56*			60.27			1965	70485
		90.0			61.8	5.900	0.079	3.150	3.500	19.60	20.50	55.77*			62.24			1966	84366
		90.08			51.8	6.900	6.0.0	1.180	1.530	33.60	41.10	67.38*			66.49*			1966	84366
		90.0			61.8	5.900	0.079	0.390	0.630	49.50	50.00	39.24*			50.09*			1965	70485
T3 Cont'd	Sheet Cont'd	90:0	R.T. Cont'd	Cont'd	61.8	5.900	0.079	0.790	1.140	43.10	44.00	49.56	Cont'd	Cont'd	60.27	Cont'd	Cont'd	1966	84366
		90.0			51.8	6.900	9.079	3.150	3.500	19.60	20.50	55.77*			62.24*			1965	70485
		90.0			61.8	2.900	0.079	1.580	2.160	31.20	36.60	60.35*			+63.E7			1966	84366
		90.0			61.8	6.900	0.079	1.580	2.050	29.60	37.00	61.01*			*28.17			1966	84366
		90.0		1	51.8	5.900	0.079	1.580	2.160	31.20	36.60	60.35*			73.59*			1965	70485
		90.0			51.8	5.900	6.00	0.790	1.220	45.30	46.20	52.04*			•02'29			1966	84366
		90.0			51.8	5.900	0.079	1.580	2.050	29.60	37.00	61.01*			71.82*			1965	70485
		90.0			61.8	2.900	9.079	3.150	3.500	20.20	21.20	57.68*			64.37*			1965	70485
		90.08			61.8	6.900	0.079	3.150	3.580	20.60	21.30	67.95*			66.37*			1965	70485
		0.08			51.8	2.900	0.079	0.780	1.140	46.30	46.90	52.83*			64.25			1966	84366

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

ALU	ALU	ALU	ALU	ALU	ALU	3	WIL	ALUMINUM	2024	2024 (ALCLAD)	(QV)	К							
	PROI	PRODUCT	Į.			SPECIMEN	JEN	CRACK	CK	GROSS STRESS	SS		Керр			κ _ο			
	FORM	THICK (in.)	TEMP (°F)	SPEC		WIDTH 7	THICK (in.)	(in.) 2a.	FINAL (in.) 2s,	ONSET (Kai) 0.	MAX (Kel)	K (Kai√in)	MEAN	STAN DEV	K _e (Ket√in)	K _o MEAN	STAN DEV	DATE	REFER
******							BUCKI	ING OF	BUCKLING OF CRACK EDGES RESTRAINED	OGES RE	STRAINE	Ω							
-		90.0			8.13	2.900	0.079	0.790	1.140	46.20	46.80	62.72*			64.11*			1965	70485
		90.0			8.13	2.900	6.00	1.180	1.500	36.10	41.10	57.38*			65.73*			1966	84366
		0.08			51.8	5.900	0.079	1.580	2.090	33.40	36.60	60.35*			71.97*			1965	70485
		0.08		LI	8.13	6.900	0.079	3.150	3.500	20.20	21.20	57.68*			64.37*			1966	84366
		0.08		_	61.8	5.900	0.079	0.390	0.670	49.10	49.40	38.77*			51.09*			1965	70485
		90.0		1	61.8	6.900	6.00	1.580	2.080	33.40	36.60	60.35*			71.73*			1966	84366
		90'0		1	63.0	5.900	0.079	1.180	1.650	37.20	40.70	56.82*			68.87*			1966	84366
		90.0		1	63.0	6.900	0.079	1.180	1.580	36.40	40.90	57.10*			67.44*			1966	84366
	Sheet	90.0	R.T. Cont'd	Cont'd	53.0	6.900	0.079	0.790	1.140	:	45.00	50.69*	Cont'd	Cont'd	61.64*	Cont'd	Cont'd	1966	84366
		0.08			53.0	2.900	9.0.0	1.180	1.610	36.60	40.00	55.84			66.70*			1966	84366
		0.08			53.0	6.900	0.079	0.790	i	:	45.00	€0.69						1966	84366
		0.08			63.0	6.900	6.0.0	3.150	3.620	:	21.80	59.31			68.83*			1966	84366
		0.08			63.0	6.900	0.079	0.790	:	1	44.90	50.58*						1966	84366
		0.08			63.0	2.900	0.079	1.580	2.050	:	37.70	62.16			73.18*			1966	84366
		0.08		l	63.0	6.900	0.079	3.150	3.580	ı	21.10	67.41*			65.76			1966	84366
_		90'0		L	63.0	2.900	0.079	1.580	1.970	29.00	36.20	€9.63	-		68.45*			1966	84366
		0.08			63.0	6.900	0.079	1.580	2.120	30.70	35.20	58.04			69.88			1966	84366

• NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DBVIATION.

		REFER		84366	84366	84366	84366	84366	84366	84366	70519	70519	70519	10519	70519	70519	70519	70519	70519	70485	70485	20702
								-		_		_				ļ		_	<u> </u>		_	-
	ļ 	DATE		1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1965	1965	100
		STAN					ì	!							!		_				i	
	K _c	K _e MEAN													ı						1	
		K, (Kalvín)		78.78*	82.78*	72.26*	77.56*	63.81*	69.84*	62.67*	90.15*	95.69*	75.01	72.14	*10.04	71.00*	64.03*	96.48	95.37*	99.56*	85.43*	90.00
		STAN			ا	<u> </u>		4	<u> </u>						ı						i	
	Kapp	K.					!		_						i						I	
Kc	7	K (Keivin)	Q	62.99*	62.99*	64.75*	64.21*	53.51*	60.03*	53.62*	72.35*	72.95*	60.87*	61.21*	61.21*	54.93*	54.52*	73.26*	73.70*	85.67*	71.19*	69 93*
AD)	SS	MAX (Kei)	STRAINE	38.20	38.20	23.80	23.60	47.50	43.00	47.60	23.90	29.20	36.00	36.20	36.20	40.10	39.80	24.20	29.50	28.30	42.10	45 50
2024 (ALCLAD)	GROSS	ONSET (Kei) G	BUCKLING OF CRACK EDGES RESTRAINED	25.80	31.80	20.30	21.60	46.40	39.80	46.40	17.20	20.40	25.60	30.50	29.80	33.80	35.20	18.10	20.60	17.20	32.30	32.00
2024	СК	FINAL (in.)	CRACK E	2.240	2.400	3.500	3.740	1.100	1.540	1.060	6.170	6.240	2.600	2.400	2.950	1.930	1.610	6.530	6.150	6.710	2.480	2.240
NUM	CRACK	INIT (in.) 2a.	I ING O	1.580	1.580	3.150	3.150	0.790	1.180	0.790	4.720	3.540	1.770	1.770	1.770	1.180	1.180	4.720	3.540	4.720	1.770	1.180
ALUMINUM	IMEN	THICK (in.) B	BUCK	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.039	0.039	0.039	0.039	0.039	0.039	0.039	0.039	0.039	0.079	0.079	0.079
	SPECIMEN	WILYTH (ftp.) W		5.900	6.900	5.900	6.900	5.900	5.900	5.900	11.800	11.800	11.800	11.800	11.800	11.800	11.800	11.800	11.800	11.800	11.800	11.800
	4 18	STR (Kel)		56.0	66.0	66.0	66.0	66.0	66.0	56.0	45.0	45.0	45.0	45.0	45.0	45.0	46.0	45.0	45.0	51.8	51.8	61.8
		SPRC					1-1								ŗ						7	
	1001	TEMP (°F)					R.T.								R.T.						R.T.	
	UCT	THICK (in.)		0.09	0.09	60:0	0.09	60.0	0.09	0.09	0.04	90.04	90.04	0.0ч	90.04	0.04	0.04	0.04	0.04	0.08	90.0	90.0
	PRODUCT	FORM			1	1	Sheet		1		1		1		Sheet		1	1		1	Sheet	
		CONDITION HEAT TREAT					£								g						E	

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

						¥	ALUMINUM	NOM	2024	2024 (ALCLAD)	(QV	K _C							
	PRODUCT	OUCE	100	l 		SPECIMEN	MEN	CRACK	CK #TH	GROSS	SS SS		Карр			Кc			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Kel)	WIDTH 1	THICK (in.)	INIT 1 (in.) 2a.	FINAL (in.) 2a,	ONSET (Kei) 0.	MAX (Kel)	K. (Kelvin)	K,	STAN DEV	K _o (Kei√in)	K _o MEAN	STAN	DATE	REFER
							виск	LING OF	CRACK I	BUCKLING OF CRACK EDGES RESTRAINED	STRAINE	Ω							
		0.08			51.8	11.800	0.079	1.770	2.280	28.50	42.10	71.19*			81.56*			1965	70485
		0.08			51.8	11.800	0.079	4.720	5.830	17.40	28.50	86.28*			102.09			1965	70485
		90.0			51.8	11.800	0.079	3.540	4.540	24.90	34.00	84.94*			100.09*			1965	70485
T3 Cont'd	Sheet	90.0	R.T. Cont'd	Cont'd	51.8	11.800	0.079	3.540	4.610	25.80	33.80	84.44*	Cont'd	Cont'd	100.59*	Cont'd	Cont'd	1965	70485
		90.0			51.8	11.800	0.079	1.770	2.480	30.50	41.90	70.85*			85.03*			1965	70485
		90.08			51.8	11.800	0.079	1.180	1.610	33.40	45.80	62.74*			73.68			1965	70485
		90.0			51.8	11.800	0.079	1.180	1.580	31.00	45.10	61.78*			71.85*			1965	70485
		0.11		1	53.2	11.800	0.118	1.180	1.810	37.80	44.30	€9.09			75.80*			1966	70519
		0.11			53.2	11.800	0.118	4.720	6.400	20.40	25.60	77.50*			85.95*			1966	70519
		0.11			53.2	11.800	0.118	4.720	6.550	20.60	25.20	76.29			86.54*			1966	70519
		0.11			53.2	11.800	0.118	1.180	1.730	38.70	45.00	61.65*			75.18*			1966	70519
£	Sheet	0.11	R.T.	7	53.2	11.800	0.118	3.540	4.560	25.20	32.20	80.44*	i	i	95.09*	i	1	1966	70519
		0.11			53.2	11.800	0.118	3.540	4.690	23.30	32.20	80.44			97.03*			1966	70519
		0.11		.	63.2	11.800	0.118	1.770	2.520	34.00	41.50	70.17*			84.97*			1966	70519
		0.11			63.2	11.800	0.118	1.770	2.720	31.90	41.60	70.34*			88.92*	-1		1966	70519
		0.11			53.2	11.800	0.118	1.770	2.480	35.70	41.90	70.85◆			85.03*			1966	70519
		0.16			62.0	11.800	0.158	1.180	1.610	38.10	44.30	60.69*			71.27*			1966	70519
ដ	Sheet	0.16	R.T.		62.0	11.800	0.158	3.540	4.610	26.30	32.50	81.19*	ı	!	96.72*	:	1	1966	70519
		0.16			62.0	11.800	0.158	4.720	6.060	19.80	26.90	81.43*			99.78*			1966	70519

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

						A	ALUMINUM	ICM	2024	2024 (ALCLAD)	(QV)	К _с							
	PROI	PRODUCT	469ath	l 	6	SPECIMEN	TEN	CRACK	Ж	GROSS	S. S.		Kapp			Kc			
CONDITION HEAT TREAT	FORM	THICK (In.)	TEMP (°F)	SPEC		WIDTH 1 (fn.) W	THICK I	INIT F	FINAL (in.) 2a,	ONSET (Kei) G	MAX (Kel)	K (Ksivin)	K.	STAN DEV	K _e (Kel ¹ (in)	K _e MEAN	STAN	DATE	REFER
				•			BUCKL	ING OF	CRACKE	BUCKLING OF CRACK EDGES RESTRAINED	STRAINE	α							
		0.16			62.0	11.800	0.158	1.180	1.610	38.40	44.40	60.82*			71.43*			1966	70519
		0.16		1	62.0	11.800	0.158	1.770	2.440	33.80	41.60	70.34*			93.66◆			1966	70519
E	Sheet	0.16	R.T.	7	62.0	11.800	0.158	1.770	2.990	34.80	41.10	69.50			92.77*			1966	70519
Cont'd	Cont'd	0.16	Cont'd	Cont'd	62.0	11.800	0.158 3	3.540	4.210	23.30	32.20	80.44	Cont'd	Cont'd	89.97*	Cont'd	Cont'd	1966	70519
		0.16		1	62.0	11.800	0.158	4.720	5.640	20.90	26.50	80.22*	`		92.24			1966	70519
		0.16			62.0	11.800	0.158	1.770	2.520	34.00	41.30	69.84			84.56*			1966	70519
2	10	0.01	E	E	61.8	15.000	0.009	7.500	8.890	:	21.20	86.53*			102.53*			1966	86734
:	130110	0.01	; i	5	61.8	15.000	0.010	7.500	8.840	ŀ	21.40	87.35	i	i	102.84*	ı	i	1966	86734
E E	Sheet	0.02	R.T.	7.	42.3	15.000	0.019	7.500	9.900	ı	21.90	89.39*	1	1	121.04	1	1	1966	86734
£	S, Post	0.03	E D	Ę	63.0	15.000	0:030	7.500	9.330	1	22.80	93.06*			116.69*			1966	86734
	18010	0.03	: I	5	63.0	15.000	0.030	7.500	9.600	1	22.30	91.02*	ŀ	i	118.30*	ı	1	1966	86734
		90.08		1	61.8	23.600	0.079	1.970	3.190	32.60	45.10	79.68*			102.11*			1965	70485
		0.08		•	61.8	23.600	0.079	11.80	12.520	12.70	20.20	103.42			109.24			1965	70485
		0.08			61.8	23.600	0.079	4.720	6.300	23.60	31.30	87.39			103.03*			1965	70485
<u> </u>	S. S	0.08	E-	-	61.8	23.600	0.079	0.790	-	;	49.80	65.51			ı			1965	70485
		0.08		<u> </u>	61.8	23.600	9.079	6.300	9.060	15.90	31.90	105.00*	89.9	10.5	132.50*	ı	i	1965	70485
		90.0		1	61.8	23.600	0.079	0.790	1.690	46.20	50.40	56.18*			82.38*	,		1965	70485
		90.0			61.8	23.600	0.079	4.720	7.400	23.90	37.80	105.54*			137.29*			1965	70485
		0.08			61.8	23.600	0.079	1.180	2.620	37.80	49.20	67.09*			100.58*			1965	70485

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

						╟												
		ተያሪተ ተ		VIRI	SPECIMEN	MEN	CRACK	CK TH	GROSS	SS		Kapp			К _с			
-	THICK (in.)	TEMP (°P.)	SPEC		WIDTH 1	THICK (fb.)	INIT (in.) 2a.	FINAL (in.) 2a,	ONSET (Ksi) 0.	MAX (Kal)	K (Kei√in)	K,	STAN DEV	(Kst√ίπ)	K _o MEAN	STAN	DATE	REFER
						виск	LINGOF	CRACK	BUCKLING OF CRACK EDGES RESTRAINED	STRAIN	Œ							
	90.08		1	51.8	23.600	0.079	3.150	4.450	25.60	35.40	79.62			95.70*			1965	70485
	90:08		1	61.8	23.600	6.00	1.580	i	ı	46.30	73.14						1965	70485
	90.08			61.8	23.600	0.079	1.580	2.520	40.70	48.60	76.78*			97.38*			1965	70485
	90.08		!	8.13	23.600	6.00	4.720	6.750	22.20	29.80	83.20			92.99			1965	70485
	90.08			61.8	23.600	6.00	6.300	9.450	18.00	30.90	101.71*			132.39*			1965	70485
	90.08			51.8	23.600	6.0.0	8.660	11.720	13.20	25.20	101.50			128.24*			1965	70485
Sheet Cont'd	90.0	R.T. Cont'd	Cont'd	51.8	23.600	0.079	15.75	1	ì	13.70	96.46	Cont'd	Cont'd		Cont'd	Cont'd	1965	70485
	90.0		1	51.8	23.600	6.0.0	1.580	2.440	40.71	47.00	74.25*	,		92.62*			1965	70485
	90.08		1	51.8	23.600	0.079	3.150	4.490	25.30	37.00	83.22*			100.51			1965	70485
	90.08			61.8	23.600	6.00	1.180	1.850	41.90	48.50	66.13*			82.99*			1965	70485
	90.0			61.8	23.600	0.079	3.150	4.600	28.00	34.60	77.82			95.25*			1965	70485
	90.08			51.8	23.600	6.00	1.180	2.090	41.70	50.00	68.18*			91.04*			1965	70485
	90.08			51.8	23.600	6.00	0.790	1.420	28.90	52.40	58.41*			78.43*			1965	70485
	90.0	E	<u> </u>	52.8	48.000	0.060	24.00	29.850	i	19.10	139.46			174.83*			1966	86734
	90.0		5	52.8	48.000	0.061	24.00	28.250	ı	19.60	143.11	141.3	2.6	168.24*	1	I	1966	86734
	10.01	E	L	46.0	14.990	600.0	7.500	9.510	!	20.80	84.92*			109.08*			1962	62308
	0.01	<u>;</u>	3	46.0	14.990	0.010	7.500	9.060	1	21.20	86.56	i	i	104.82*	ı	I	1962	80629
Sheet	0.02	R.T.	T-L	46.5	15.000	0.020	7.500	8.680	ı	20.40	83.27*	!	1	\$6.09¢			1966	86734
Sheet	90.0	R.T.	T-L	44.9	48.000	0.061	24.00	28.650	1	17.10	124.86	I	:	149.12*	:	ı	1966	86734

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION,

						V	ALUMINUM	MOM	2024	2024 (ALCLAD)	AD)	Kc							
	PROI	PRODUCT	to at			SPECIMEN	MEN	CRACK	CK TH	GROSS	SS SS		Карр			Кc	. ——		
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC		WIDTH (fn.)	THICK (in.)	INIT F	FINAL (in.)	ONSET (Ket) 0.	MAX (Ket)	K (Keivin)	K	STAN	K _g (Kelvin)	K _o MEAN	STAN	DATE	REFER
							BUCKI	ING OF	CRACK B	BUCKLING OF CRACK EDGES RESTRAINED	STRAINE	Q.							
£	į	90:0	É		43.0	47.980	0.079	24.00	27.150	i	18.80	137.29*			154.64*			1966	86734
61	Sheet	90.0	R.I.	7-1	43.0	47.980	0.080	24.00	27.810	ı	18.90	138.02*	1	i	159.50*	ı	i	1966	86734
							BUCKLIN	IG OF CI	RACK RD	BUCKLING OF CRACK RDGES NOT RESTRAINED	RESTRAI	NED							
		90.0			47.0	12.000	0.061	3.000	:	ı	31.60	71.37*						1966	86734
1	į	90.0	(47.0	12.000	0.061	3.910	ï	1	26.82	71.18*						1966	86734
2	Sheet	90.0	9	<u> </u>	47.0	12.000	0.061	3.000	;	ı	32.10	72.50*	i	i		ı	i	1966	86734
		90:06			47.0	12.000	0.061	3.000	:	:	31.60	71.37*			••			1966	86734
		90'0	6		53.2	2.000	0.064	0.622	1.020	33.30	36.20	38.08*			54.93*			1973	86213
51	Sheet	90.0	K.T.		63.2	2.000	0.064	0.621	0.980	31.60	36.20	38.00*	:	:	€3.00•		:	1973	86213
		0.04			44.3	7.500	0.040	3.000	ï	;	21.30	51.41*			;			1966	86734
		0.04			44.4	7.500	0.040	3.000	;	i	21.90	62.85*			;			1966	86734
		0.04			46.1	7.500	0.040	0.550	;	i	41.30	38.52*			ŀ			1966	86734
· · · · · · · · · · · · · · · · · · ·		0.04			46.1	7.500	0.040	1.050	;	i	37.20	48.36*			:	, , , , , , , , , , , , , , , , , , , 		1966	86734
Ę	ž	0.04	Ē		46.1	7.500	0.040	4.700	ı	i	12.14	44.34			i	·	·	1966	86734
2	8	₩0.0	<u>.</u>	<u>.</u>	46.1	7.500	0.040	4.700	,	:	12.14	44.34	50.5	4.4	:	ı	i	1966	86734
		0.04			46.1	7.500	0.040	2.100	i	ı	28.70	54.80*						1966	86734
		0.04			46.1	7.500	0.040	1.100	:	i	39.60	62.76			1			1966	86734
		0.04			46.1	7.500	0.040	3.900	:	ï	16.73	50.05			!	- 1	-	1966	86734
		90.0			46.1	7.500	0.040	1.050	!	ı	37.10	48.23*			1			1966	86734

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

		REFER		86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	Ī
		DATE		1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	Ī
		STAN						<u> </u>	L		!		Cont'd		L			L	L			
	К _с	K _e MEAN						·		,			Cont'd									
		K _o (Kei√in)		į	1	ı	i	ı	i	1	;	;	į	1	:		1	ı		1	ı	
		STAN											Cont'd									_
	Kapp	K											Cont'd				-	····				
K _c		K (Ksi√in)	VED	37.41*	38.79*	55.45*	48.53	50.83	47.48	54.47*	39.90*	60.30*	50.86	52.31*	61.01	53.10	40.35*	47.40*	53.63	60.15*	64.45*	
(AD)	SS	MAX (Kei)	RESTRAD	42.10	41.60	29.90	15.27	15.80	13.00	41.90	44.90	30.70	16.20	42.40	32.90	17.33	45.40	43.40	17.00	44.10	12.14	
2024 (ALCLAD)	GROSS	ONSET (Kei) G	BUCKLING OF CRACK EDGES NOT RESTRAINED	1	:	:	:	ï		ï	:	I	ı	1	:	ı	ı	i	ı	:	ı	-
2024	CRACK	FINAL (in.) 2a,	RACK ED	ŀ	:	:	:	:	:	i	÷		:	:	:	1	:	ı	1	ı	ı	
INUM	CRACK	INIT (in.) 2a,	ING OF C	0.500	0.650	2.000	4.150	4.200	4.700	1.050	0.500	2.200	4.100	0.950	2.000	4.000	0.500	0.750	4.120	1.150	6.900	
ALUMINUM	SPECIMEN	THICK (in.) B	BUCKL	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	
	SPEC	WIDTH (in.) W		7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	
		STR (Kel)		46.1	46.1	46.1	46.1	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	61.0	61.0	61.0	
		SPEC OR											L-T Cont'd									
	100	TEMP (°F)											R.T. Cont'd									
	UCT	THICK (In.)		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	90:04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
	PRODUCT	FORM			!	1			!				Sheet Cont'd	!			!			1	3	
		CONDITION HEAT TREAT											T3 Cont'd						·			

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

		REFER		86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	
		DATE		1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	
		STAN					L <u></u>	L	Cont'd	<u> </u>	·							1		<u></u>	·	۱.,
	Ke	K _o MEAN							Cont'd			, -						ı				
		K _c (Ksi√in)		1	ï	:	:	i	:	i	:	1	:	-	ı	1	:		1	ı		
		BTAN DEV						!	Cont'd		L							ì				_
	Kapp	K. MEAN							Cont'd						=			ı				
К _с		K. (Keivin)	VED	55.33*	57.36*	45.59*	46.41	45.94*	48.56	51.47*	53.10	59.61	56.23	40.17*	55.15*	62.47*	39.81*	56.47*	46.76	55.01*	61.92*	
AD)	SS SS	MAX (Kei)	RESTRAIL	48.70	31.40	51.30	12.14	51.70	14.80	50.70	22.00	24.70	23.30	45.20	41.80	34.30	44.80	18.83	12.13	12.13	34.10	
2024 (ALCLAD)	GROSS	ONSET (Ket) G.	BUCKLING OF CRACK EDGES NOT RESTRAINED	:	-	1	ŀ		:	÷	ı	1	1	:	1	:	:	ı	1	:	:	
2024	СК ЭТН	FINAL (in.) 2a,	RACK ED	:	:	:	:	;	:	:	:	ı	:	:	ŀ	!	ı	ı	!	:	:	
NOM	CRACK	INIT (ln.) 2a.	NG OF C	0.810	1.950	0.500	4.870	0.500	4.280	0.650	3.000	3.000	3.000	0.500	1.080	1.940	0.500	3.910	4.900	6.450	1.930	
ALUMINUM	IMEN	THICK (in.) B	BUCKLI	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	
4	SPECIMEN	WIDTH (In.)		7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	
	u jala	STR (Kel)		61.0	61.0	61.0	51.0	51.0	51.0	61.0	51.2	51.5	51.5	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	
		SPEC						1.7	Cont'd									1.7				
	15/2	TEMP (F)						R.T.	Cont'd									R.T.				
	UCT	THICK (fn.)		90.04	9.04	0.04	0.04	0.04	90'0	0.04	0.04	0.04	0.04	90.06	90.0	90.0	90.0	90.0	0.06	0.06	0.06	
	PRODUCT	FORM		!		<u>l</u>	I	Sheet	Cont'd						1			Sheet				
		CONDITION HEAT TREAT						T2	Cont'd									Т3				

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

						¥	ALUMINUM	MON	202	2024 (ALCLAD)	[AD)	⊼							
	PRODUCT	oucr	to Et	l 	4	SPECIMEN	MEN	CRACK	CK	GROSS	SS		Kapp			Kc			
CONDITION HEAT TREAT	FORM	THICK (In.)	TEMP (°F)	SPEC		WIDTH (In.)	THICK (in.)	INIT (In.)	FINAL (in.)	ONSET (Kei) G.	MAX (Kel)	K (Kelvin)	K MEAN	STAN DEV	K _e (Kel√in)	K, MEAN	STAN	DATE	REFER
							BUCKLD	IG OF C	KACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRA	INED							
		90'0			44.2	7.500	0.064	0.500	į	ŀ	46.00	40.88*			:			1966	86734
T3 Cont'd	Sheet	90.0	R.T. Cont'd	등	44.2	7.500	0.064	3.760	1	i	19.75	57.14*	Cont'd	Cont'd	ı	Cont'd	Cont'd	1966	86734
		90:0			44.2	7.500	0.064	0.96.0	i	ı	45.80	56.82*			;			1966	86734
23	Sheet	0.03	R.T.	T	61.0	9.000	0.032	2.560	2.800	1	31.90	67.36*	!	:	71.20*	1		1965	62311
		9.04	2.2	!	61.0	9.000	0.040	4.480	4.980	18.20	20.70	65.19*			72.06*			1965	62311
		0.04			61.0	9.000	0.040	2.490	2.800	28.30	31.90	66.24*			71.20*			1965	62311
E E	Sheet	9.04	R.T.		51.0	9.000	0.040	4.420	4.880	18.10	20.50	63.80	63.2	9.6	69.93*	1		1965	62311
		0.04		1	61.0	9.000	0.040	6.280	6.500	9.60	9:90	45.99			48.66			1965	62311
		90.04			61.0	9.000	0.040	6.220	6.620	9.20	10.90	49.89			55.33*			1965	62311
	,£	60.0		1	61.0	9.000	0.091	4.480	5.060	20.10	23.10	72.75*			81.74*			1965	62311
	1	60.0		1	61.0	9.000	0.091	2.560	2.920	28.10	35.70	75.38*			81.83*			1965	62311
٤	70	60.0	E	I	61.0	9.000	0.091	6.230	6.520	10.90	14.00	64.24*			69.18*			1965	62311
2	8	60.0		 S	61.0	9.000	0.091	6.190	6.650	11.00	13.60	61.79*	i	:	69.61*	1	:	1965	62311
		60.0		Ь	61.0	9.000	0.091	4.480	4.860	20.10	23.20	73.06*	·		78.82*			1965	62311
		60.0			61.0	9.000	0.091	2.500	3.040	28.10	34.90	72.65*			82.12*			1965	62311
Ę	i di	0.10	E-	E.	61.0	000.6	0.102	2.100	2.340	32.10	36.10	67.86*			72.25*			1965	62311
:		0.10		5	61.0	9.000	0.102	-	1.700	1	39.20	***	ł	:	65.50*	ı	i	1965	62311
<u> </u>		90.0	E		62.7	15.820	0.062	4.000	:	:	30.90	80.66			ı			1973	86213
5	anest Superior	90.0	K.T.	<u>-</u>	52.7	15.820	0.063	1.020	1.500	;	47.10	59 77*	78.9	2.6	*04.64	1	ı	1	01000

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

						A	ALUMINUM	NOM	2024	2024 (ALCLAD)	AD)	$\mathbf{K}_{\mathbf{C}}$							
	PRODUCT	vucr	5			SPECIMEN	MEN	CRACK	СК	GROSS	SS		Kapp			К _с			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Kal)	WIDTH 1	THICK (in.)	INIT (in.) 2a,	FINAL (in.) 2a,	ONSET (Ksi)	MAX (Kat)	K (Keivin)	MEAN	STAN	K _e (Ketvin)	K _e MEAN	STAN	DATE	REFER
							BUCKLE	VG OF C	RACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRA	NED							
	Sheet	90.0	R.T.		52.7	15.810	0.064	6.010	7.310	ı	22.80	77.04			*36.98			1973	86213
	Cont'd	90.0	Cont'd	Cont'd	52.7	15.810	0.065	3.000	4.370	:	36.10	80.15*	Contd	Cont'd	*06.66	Cont'd	Cont'd	1973	86213
	ā	0.04	£		61.0	20.000	0.040	2.260	4.900	27.50	40.10	76.15*			115.56*			1965	62311
	Sheet	0.04	K.T.	5	61.0	20.000	0.040	2.260	7.370	27.00	40.10	76.15*	ł	ı	149.12*	ı	:	1965	62311
	•	0.04			50.6	30.000	0.040	15.00	19.700	;	17.70	102.17			137.40*			1966	86734
		0.04			9.09	30.000	0.040	15.00	17.700	ŀ	18.30	105.64			124.53*			1966	86734
	10	0.04	E D	E	6.09	30.000	0.040	6.000	ı	ı	27.80	87.51			:			1966	86734
		0.04			51.3	30.000	0.040	12.00	ì	1	17.50	84.47	90.4	10.8	:	!	1	1966	86734
		90.04			51.6	30.000	0.040	12.00	i	:	17.41	84.04			1			1966	86734
		0.04			52.1	30.000	0.040	3.000	1	ı	36.10	78.85			1			1966	86734
		0.10		1	52.7	35.000	0.102	4.950	:	i	37.40	105.59*			:			1956	84367
		0.10		4	52.7	35.000	0.102	17.90	i	ı	19.10	121.55			1			1956	84367
	50	0.10	E o	-	52.7	35.000	0.102	17.85	:	ı	13.60	86.33						1956	84367
		0.10	į	<u> </u>	52.7	35.000	0.102	1.480	;	i	48.10	73.42*	103.5	17.6	1	i	I	1956	84367
		0.10			52.7	35.000	0.102	1.070	ı	i	49.60	64.34*			1			1956	84367
		0.10			52.7	35.000	0.102	10.70	ı	:	23.60	102.74		;	-			1956	84367
	5048	90.0	£	Ę.	49.4	47.990	0.079	24.00	27.300	1	19.60	143.12			162.14			1966	86734
	Sheet	0.08	:	1	49.4	47.990	080.0	24.00	27.450	ı	19.60	143.12	143.1	0.0	163.08*	ı	1	1966	86734

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

	t) l:					A	ALUMINUM	4UM	2024	2024 (ALCLAD)	(AD)	K _c							
		PRODUCT	5		I I	SPECIMEN	MEN	CRACK	OK TTH	GROSS	SS		Kapp			K c	·		
CONDITION HEAT TREAT	FORM	THICK (fn.)	TEMP (°F)	SPEC		WIDTH 1	THICK (In.)	INIT I	FINAL (in.) 2a,	ONSET (Kei) G.	MAX (Kei)	K (Kei√in)	K,	STAN	K _e (Ksi√in)	K _o MEAN	STAN	DATE	REFER
							BUCKLIN	GOFCE	VACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRA	INED							
		60.0	··	1	52.5	3.000	0.090	1.270	2.182	ı	29.70	47.29*			85.32*			1973	86213
		60.0			52.5	3.000	0.090	1.320	2.240	1	28.60	46.92*			86.18*	-		1973	86213
		60.0			62.0	3.000	0.091	1.200	2.067	ı	30.50	46.56*			80.16*			1973	86213
		60.0			62.0	3.000	160:0	1.280	2.135	ı	29.60	47.41•			81.88*			8261	86213
73	Sheet	60.0	82	5	52.5	3.000	160:0	1.140	2.067	ı	32.30	47.53*		1	84.89*	ı	i	1973	86213
		0.09		٠	51.2	3.000	0.092	1.230	2.229	ı	30.10	46.79*			*62.68			1973	86213
		60.0		1	51.2	3.000	0.092	1.240	2.103	1	30.00	46.91*			80.99*			1973	86213
		60:0		4	51.2	3.000	0.092	1.180	2.149	1	31.00	46.75*			86.69*			1973	86213
		60:0			52.0	3.000	0.092	1.270	2.164	ı	29.30	46.65*			82.97*			1973	86213
	o choose	90.0	E	F	46.2	2.000	0.064	0.622	1.100	32.00	33.50	35.24*			54.64*			1973	86213
		90.0		2	46.2	2.000	0.064	0.623	1.120	32.30	33.50	35.24*	::	:	55.65*	į		8261	86213
T3	Sheet	90.0	R.T.	T.L	43.4	9:000	090.0	2.000	2.200	ı	29.30	55.81*		ı	59.48*	1	:	1966	86734
		0.04	****	1	69.5	7.500	0.040	0.500	i	1	46.00	40.88*						1966	86734
		0.04			59.5	7.500	0.040	1.300	1	1	36.80	53.58						1966	86734
		0.04			59.5	7.500	0.040	4.060		i	15.07	46.85						1966	86734
T3	Sheet	0.04	R.T.	15.	9.69	7.500	0.040	2.000	-	-	30.10	55.82	48.9	6.1	ï	ı	i	1966	86734
		9.04			9.69	7.500	0.040	0.750			44.70	48.82*	<u> </u>		**		·	1966	86734
		0.04			59.5	7.500	0.040	0.550	:	i	45.00	41.97*						1966	86734
		0.04			9.69	7.500	0,040	4.200	•	:	12.14	39.06			:			1966	86734

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

		×			41	-	451	4	-	4	-	-	4	4	4	4	4	4	4	4	4	Γ
		REFER		86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	86734	
		DATE		1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	1966	
		STAN				Cont'd										:						
	Кc	K _c MEAN				Cont'd										1						
		_{Ko} (Kei√in)		ı	:	:	1	i	ı	i	ij			·	i	ŀ	i	;	I	ì	i	
		STAN				Cont'd										6.0						
	Kapp	K. MEAN				Cont'd										48.1						
K _c		K. (Kelvin)	NED	55.30	40.61*	42.22	48.29	50.02	56.56*	36.88*	50.72	40.92*	60.58	37.32*	49.46	42.10	37.32*	47.65*	55.36*	46.20	38.12	58.43
(AD)	SS	MAX (Kel)	RESTRAL	29.30	45.70	11.53	15.76	40.10	30.50	41.50	15.92	40.00	16.15	42.00	14.63	12.14	42.00	97.60	30.30	42.30	42.90	30.00
2024 (ALCLAD)	GROSS	ONSET (Kei) o.	BUCKLING OF CRACK EDGES NOT RESTRAINED	ı	1	1		:	;			:	ï	;	i	:	:	1	ı	:	ï	,
	CRACK	FINAL (in.) 2a,	RACK ED	i	ı	:	:	:	:		1	ı	i	:	ı	:	:	:	:		;	i
NOM	CR/ LEN	INIT (ln.) 2a.	ING OF	2.060	0.500	4.710	4.000	0.970	2.000	0.500	4.160	099.0	4.090	0.500	4.400	4.500	0.500	1.000	1.950	0.750	0.500	2.170
ALUMINUM	SPECIMEN	THICK (In.) B	BUCKL	0.040	0.040	0.040	0.040	0.040	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
	SPEC	WIDTH (3a.) W		7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500
	Y IAIA	STR (Kel)		59.5	59.5	59.5	59.5	59.5	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	62.6	62.6	62.6
		SPEC				T.L Cont'd									i	2						
	Į.	TEMP (°F)				R.T. Cont'd									6	ž.						
	UCT	THICK (fp.)		90.04	90.04	90.0	9.04	9.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90:0	90:0	90.0	0.06	90.0
	PRODUCT	FORM		<u>. </u>		Sheet	1			!	!				! ē	all seeds	I					
		CONDITION HEAT TREAT				T3 Cont'd									Ę	2						

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

						¥	ALUMINUM	NUM	2024	2024 (ALCLAD)	(QV	К _С							
	PRO	PRODUCT			5	SPECIMEN	MEN	CRACK	CK TH	GROSS	SS		Kapp			К _с	·		
CONDITION HEAT TREAT	FORM	THICK (In.)	TEMP (°F)	SPEC	STR (Ket)	WIDTH (in.)	THICK (In.)	INIT I	FINAL (in.) 2a,	ONSET (Ket) G.	MAX (Kei)	K (Keivin)	K	STAN DEV	K _o (Ksi√in)	K _e MEAN	STAN DEV	DATE	REFER
							BUCKLIN	GOFC	BUCKLING OF CRACK EDGES NOT RESTRAINED	JES NOT	RESTRAI	NED							
		90.0			62.6	7.500~	0.064	0.500	1	1	44.40	39.46			:			1966	86734
		90.0			62.6	7.500	0.064	2.300	:	ı	27.10	54.72			ı			1966	86734
T3 Cont'd	Sheet Cont'd	90.0	R.T. Cont'd	T.L Cont'd	62.6	7.500	0.064	1.000	ı	ı	40.30	51.07	Cont'd	Cont'd	i	Cont'd	Cont'd	1966	86734
		90.0			62.6	7.500	0.064	0.750	1	1	41.70	45.54		·	1			9961	86734
		90.0			62.6	7.500	0.064	1.110			37.50	50.20			:			1966	86734
ET.	Sheet	90.0	R.T.	T·L	43.4	9.000	090.0	3.000	3.600	:	28.60	66.71*			75.61*		***	1966	86734
13	Sheet	0.02	R.T.	T·L	46.5	15.000	0.020	7.500	9.350	i	19.80	80.82*	•••		101.60*			9961	86734
£	ē	0.03	E	i	44.4	15.010	0.031	7.500	9.560	;	20.40	83.25*			107.59*			1962	62308
13	Sheet	0.03	K.T.	T-1.	44.4	15.010	0.031	7.500	9.380	į	20.40	83.25*	:	I	105.05*	1	:	1962	62308
£	ă	90.0	E	ě	43.4	15.000	0.060	2.000	5.900	:	23.70	71.37*			79.91*			1966	86734
2	199000	90:0	. J. J.	7.	43.4	15.000	090.0	2.000	2.800	1	24.00	72.28*	÷	i	79.94*	i		1966	86734
		90:0			46.6	15.810	0.064	4.000	1	i	28.40	74.14*			1			1973	86213
E	ā	90.0	ē	i	46.6	15.810	0.064	3.000	ī	ï	32.10	71.27*			1		- 	1973	86213
51	oneet oneet	90:06	X ::		46.6	15.820	0.064	1.010	1.920	:	46.40	58.59*	1	i	81.32*	ı	ı	1973	86213
		90:0			46.6	15.810	0.065	0.010	7.140	i	21.20	71.63			81.51*			1973	86213
£	t	90'0	E	Ė	43.4	18.000	090.0	000.9	7.000	ı	22.10	72.91			*76.08			1966	86734
21	13010	0.06		7.1	43.4	18.000	0.061	000.9	6.900	ı	22.30	73.57	73.2	0.5	80.87*	ı	ı	1966	86734
£	100	90'0	Đ	Ę	43.4	21.000	090.0	7.000	8.400	;	20.70	73.76			83.60			1966	86734
2	180IIG	0.06		1	43.4	21.000	090.0	7.000	8.600		21.05	75.01	74.4	0.9	86.49*	ı	I	ı	86734

• NOTE: NET SECTION STRESS EXCREDS 80% OF YIRLD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

TABLE 7.6.2.2 (CONCLUDED)

						₽	ALUMINUM	KUM	2024	2024 (ALCLAD)	AD)	K,							
	PROI	PRODUCT	Į.		1	SPECIMEN	MEN	CRACK	XK TH	GROSS	88.88		K _{epp}			К _с			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC		WIDTH 1 (fn.) W	THICK (in.)	INIT F	FINAL (in.) 2a,	ONSET (Kei) G	MAX (Ksi)	K (Keivin)	K MEAN	STAN	K _e (Kelvin)	K _o MEAN	STAN	DATE	REFER
							BUCKLIN	G OF C	CACK EDC	BUCKLING OF CRACK EDGES NOT RESTRAINED	TESTRAD	YED							
£	ā	90.0	E		43.4	24.000	0.060	8.000	9.500	ŀ	20.80	79.23			89.12			1966	86734
2	Sheet	90.0	K.T.	7-1	43.4	24.000	0.061	8.000	9.600	!	21.60	82.28	80.8	2.2	93.25*	!	ı	1966	86734
Î	į	0.04	8		43.3	30.020	0.040	15.00	16.200	:	19.10	110.23*			118.44*			1962	62308
5	Sheet	0.04	K.T.	<u>.</u>	43.3	29.990	0.041	15.00	18.620	1	17.20	99.30		-	124.20*	ı	i	1962	62308
Т3	Sheet	90.0	R.T.	T.L	44.9	47.000	0.061	24.00	25.050	:	18.10	133.29*		:	138.76*			1966	86734
		0.09			44.3	3.000	0.091	1.220	2.442	:	28.00	43.26*			102.18*			1973	86213
		60:0		'	45.2	3.000	0.091	1.300	2.653	ı	26.30	42.63*			126.10*			1973	86213
		60.0			44.3	3.000	0.092	1.230	2.473	i	27.60	42.90*			104.10			1973	86213
		60:0			44.3	3.000	0.092	1.220	2.514	į	28.00	43.26*			110.90			1973	86213
Т3	Sheet	0.09	82	T-L	46.2	3.000	0.092	1.200	2.480	ı	27.10	41.37*	:	!	103.14*	!	i	1973	86213
		0.09			45.2	3.000	0.092	1.200	2.504	ı	27.70	42.28*			108.41*			1973	86213
		0.09			45.4	3.000	0.092	1.250	2.539	ı	26.90	42.32*			109.74*			1973	86213
		0.09			45.4	3.000	0.092	1.230	2.525	ı	27.10	42.12*			108.65*			1973	86213
		0.09			45.4	3.000	0.092	1.220	2.381	:	27.80	42.95*			95.18*			1973	86213
Ę		90.0			65.8	2.000	0.063	0.625	1.030		34.70	36.57			63.13*			1973	86213
186	Sheet	90.0	K.T.		65.8	2.000	0.063	0.625	0.940	:	32.90	34.68	35.6	1.3	46.48*	ı	ı	1973	86213
Š	į	0.06			65.1	2.000	0.063	0.625	0.970	-	30.90	32.57			44.84			1973	86213
981	Sheet	90'0	K.T.	T-T	66.1	2.000	0.063	0.625	0.860	ı	30.30	31.94	32.3	0.4	39.86	:	1	1973	86213

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

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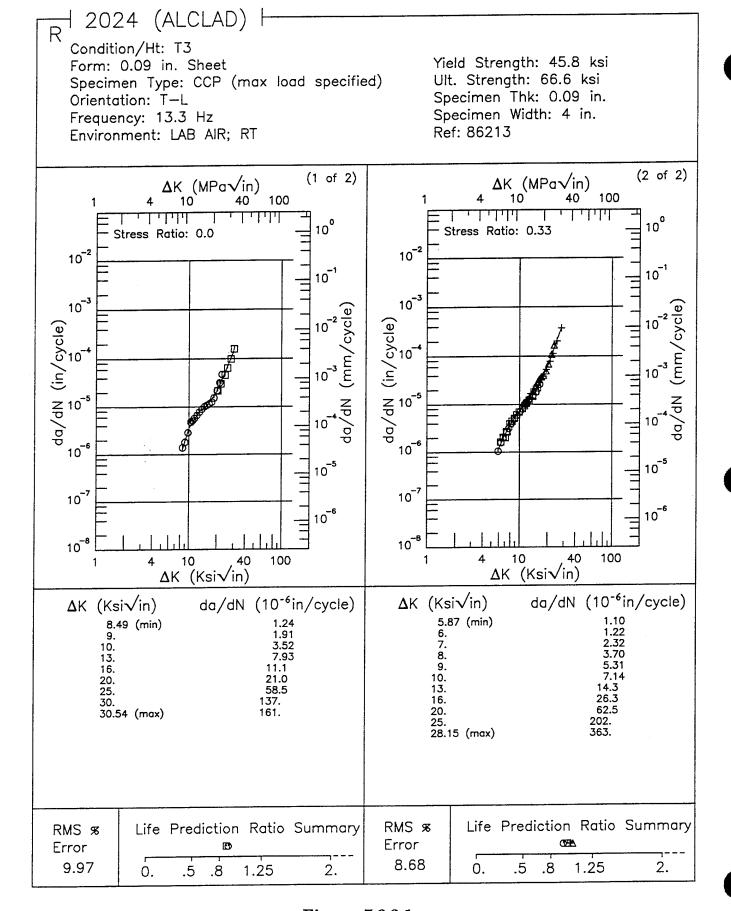


Figure 7.6.3.1

TABLE 7.7.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS FOR ALUMINUM 2000/6000 SERIES ALLOY 2048 AT ROOM TEMPERATURE

					K_{Ic}	$K_{Ic}~(ksi\sqrt{in})$	<u>1</u>			
Product Form	Condition/Heat Treatment				Specimen Orientation	n Orien	ıtation			
			L-T			T-T			S-L	
		Mean K _{Ie}	Std Dev	ď	Mean K _{lo}	Std Dev	и	Mean K _{ie}	Std Dev	ű
Plate	T851	37.9	1.9	22	30.6	2.5	24	25.4	1.9	18

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2048 AT ROOM TEMPERATURE

ENVIRONMENT: Dry Air	FCGR (10° ⁶ in/cycle) ΔK Level (Ksi√in) 50 100 20.0 60.0 100	3.28	4.94 55.31
NVIRON	2.5		
	FREQ (Hz)	2-20	2-20
	R	0.33	0.33
: L-T	PRODUCT FORM	200	FLAIE
ORIENTATION: L-T	CONDITION/ HEAT TREATMENT	s aloud	1001

0.0

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2048 AT ROOM TEMPERATURE

0.001 60.0 FCGR (10° in/cycle) $\Delta K Level (Kst/in)$ 20.0 ENVIRONMENT: S.T.W. 10.0 9.45 8.85 6.0 2.5 FREQ (Hz) 2-202-20 0.33 0.33 Ľ PRODUCT FORM PLATE ORIENTATION: L-T HEAT TREATMENT CONDITION T851

TABLE 7.7.1.2.3

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2048 ALLOYS AT ROOM TEMPERATURE

				2		
				60.0		
		`	•			
	FCGR (10.º infevele)		$\Delta K Level (Ksi_{i}/ii)$	0.02		
٤	<u> </u>	•	12	2		
3	2		¥.	- A		
V	w.					
5	9		Σ.	10.0		
ō	<u> </u>	•	Ę	2	6.46	3.71
-	×			-	9	60
ENVIRONMENT: Dry Air	9		**			
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_		FREQ	(Hz)			
		2			2-20	10-30
		-			2	=
•		-				
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		2	•		0.33	0.33
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		PRODUCT	2		2	a
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RIENTATION:		(FILON)	EATMENT		<u> </u>	700
ORIENTATION: T-L		DETION/	REATMENT			1001
ORIENTATION:		NDITION/	TREATMENT		, Act	1001
ORIENTATION:)NOTHION(TREATMENT		. A Set	1991
ORIENTATION:		CONDITION	M. TREATMENT		• 400	TOOT
ORIENTATION:		CONDITION/	GAT TREATMENT		* Actual	TOOT
ORIENTATION:		CONDITION/	HEAT TREATMENT		• 4000	1001
ORIENTATION:		CONDITION/	HEAT TREATMENT		• 1000	7007
ORIENTATION:		CONDITION/	HEAT TREATMENT		. Act	1001
ORIENTATION:		CONDITION/	HEAT TREATMENT		• 4000	1001

0.001

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK

100.0 60.0 FCGR (10° infeycle) ΔK Level (Ksiγin) 20.0 ENVIRONMENT: H.H.A. 10.0 9.24 6.0 ю 84 FREQ (Hz) 2-20 0.33 ĸ PRODUCT FORM PLATE ORIENTATION: T-L HEAT TREATMENT CONDITION T851

TABLE 7.7.1.2.5

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2048 AT ROOM TEMPERATURE

ORIENTATION: T-L

ENVIRONMENT: S.T.W.

		100.0				
2)		50.0				
infeyele	(Kst/lin)	20.0				
FCGR (10.º in/cycle)	ΔK Level (Kstγtn)	10.0	10.88	11.23		24.61
FCC	Δ.	5.0	1.05	0.5	0.78	1.52
		2,5			90.0	
	FREQ (Hz)		2-20	2-20	30	30
	Ħ		0.33	0.33	0.33	0.67
	PRODUCT FORM			THE STATE OF THE S	arun.	
	CONDITION/ HEAT TREATMENT			7.05	1001	

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2048 AT ROOM TEMPERATURE

ENVIRONMENT: H.H.A.	FCGR (10 ** in/cycle)	ΔK Level (Ksi√lii)	5.0 10.0 20.0 50.0 100.0	11.48
ENVIR	CHAL	R FREG	2.6	0.33 2-20
: S-L	HOHADA	FORM		PLATE
ORIENTATION: S-	THO THE HEAD	HEAT TREATMENT		T851

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2048 AT ROOM TEMPERATURE

ORIENTATION: S-L

ENVIRONMENT: S.T.W.

	***************************************				*********
	_				
	100.0				
	0				
	50.0				
	0				
	0				
				જા∷	****
	*****	ΔK Level (Ksi \sqrt{in})		FCGR (10 ° injeyele)	
	20.0				
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TABLE 7.7.2.

					ALU	ALUMINUM	I 2048	8 K _{Ie}							
	PROI	PRODUCT				82	SPECIMEN	z	CRACK			Kıc			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kal)	WIDTH (in.)	THICK (in.)	DRBIGN	LENGTH (in.) A	2.5 * (K _{L,} TYS)* (in.)	K. (Kalvin.)	K. MEAN	STAN DEV	DATE	REFER
		4.00			59.1	4.000	2.000	СŢ	2.040	1.06	38.40			1977	AL.001
		4.00			69.1	4.000	2.000	CT	2.020	1.00	37.40			1977	AL001
		4.00			69.1	4.000	2.000	CT	2.000	1.07	38.60			1977	AI.001
		1.00			62.1	2.000	1.000	CT	1.030	0.97	38.70			1977	AL001
		2.00			63.7	4.000	1.980	CT	2.070	0.97	39.60			1977	AL001
		2.00			63.7	4.000	1.980	CT	2.060	1.06	41.20			1977	AL001
		2.00			63.7	4.000	1.980	CT	2.060	1.11	42.40			1977	AL001
		3.00			64.2	6.000	3.000	CT	3.120	0.80	36.40			1977	AL001
		3.00			64.2	6.000	3.000	CT	3.140	0.84	37.20			1977	AL001
		4.00			64.2	4.000	2.000	CT	2.020	0.79	36.20			1977	AL001
•		3.00			64.2	6.000	3.000	\mathbf{cr}	3.120	0.83	37.00			1977	AL001
1851	Plate	4.00	R.T.	<u> </u>	64.2	4.000	2.000	CT	2.010	0.76	35.20	87.9	1.9	1977	AL001
		4.00		L	64.2	4.000	2.000	CT	2.020	08:0	36.40			1977	AL001
		3.00			64.7	6.000	3.000	CT	3.060	0.89	38.50			1977	AL001
		3.00			64.7	6.000	3.000	CT	3.070	0.90	38.80			1977	AL001
		3.00			64.7	6.000	3.000	ÇŢ	3.080	0.84	37.60			1977	AL001
		2.00			65.4	4.000	1.980	CT	2.040	06:0	39.30			1977	AL001
		2.00			65.4	4.000	1.980	CT	2.040	0.91	39.40			1977	AI.001
		2.00			65.4	4.000	1.980	CT	2.060	0.88	38.90			1977	AL001
		1.00		•	67.5	2.000	1.000	CT	1.040	0.70	35.70			1977	AL001
		1.00			67.5	2.000	1.000	СT	1.020	0.68	35.20	-1		1977	AL001
		1.00			67.5	2.000	1.000	CT	1.040	0.70	35.70			1977	AL001

2 of 3

					ALU	ALUMINUM	1 2048	18 K _{Ie}							
	PROI	PRODUCT				va.	SPECIMEN	N.	CRACK			K _{Io}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (In.)	THICK (in.) B	DESIGN	LENGTH (ln.) A	2.6 • (K _{L,} ,TYS)* (in.)	K. (Kalvin.)	K. MEAN	BTAN	DATE	REFER
		4.00			67.3	4.000	2.000	CT	2.060	0.61	28.30			1977	AL001
-		4.00			67.3	4.000	2.000	CT	2.020	0.61	28.40		<u>. </u>	1977	AL001
		4.00		1	67.3	4.000	2.000	CT	2.030	09:0	28.00		i	1977	AL001
		1.00			61.1	2.000	1.000	ÇŢ	1.030	0.67	31.70		L	1977	AL001
		1.00			61.1	2.000	1.000	Ę,	1.040	0.68	31.80			1977	AL001
		1.00			61.1	2.000	1.000	CT	1.030	0.67	31.70		<u> </u>	1977	AL/001
		4.00			61.9	4.000	2.000	CT	2.060	0.46	26.60			1977	AL001
		4.00			61.9	4.000	2.000	CT	2.040	0.48	27.00		.	1977	AL001
		4.00			61.9	4.000	2.000	CT	2.030	0.45	26.20		I.,,	1977	AL001
		2.00			62.6	4.000	1.980	CT	2.050	0.67	30.00			1977	AL001
		2.00			62.6	4.000	1.980	cr	2.090	0.56	29.70			1977	AL001
7861	Đ.	2.00	£	E	62.6	4.000	1.980	CT	2.060	0.55	29.40		L	1977	AI.001
		3.00		2	62.9	6.000	3.000	CT	3.140	0.73	33.90	30.6	2.6	1977	AI.001
		3.00			62.9	6.000	3.000	CT	3.100	0.70	33.30			1977	AL001
		3.00			62.9	6.000	3.000	CT	3.070	0.71	33.60			1977	AI.001
		3.00			63.9	6.000	3.000	СŢ	3.240	0.70	33.70			1977	AI.001
		3.00			63.9	6.000	3.000	CT	3.240	0.73	34.50			1977	AL001
		3.00			63.9	6.000	3.000	СT	3.280	0.72	34.30			1977	AL/001
		2.00			64.9	4.000	1.980	CT	2.070	0.66	30.40			1977	AL001
		2.00			64.9	4.000	1.980	CT	2.050	0.63	29.90			1977	AL/001
		2.00			64.9	4.000	1.980	CT	2.090	0.62	29.50			1977	AI.001
		1.00			65.4	2.000	1.000	CT	1.060	0.56	30.90		<u>-</u>	1977	AL001
		1.00			65.4	2.000	1.000	СŢ	1.060	0.56	31.00		اسيو.	1977	AL001
		1.00			65.4	2.000	1.000	CJ.	1.060	0.66	30.70			1977	AL001

				1	ALU	ALUMINUM	1 2048	8 K _{Ic}							
	PROI	PRODUCT				82	SPECIMEN	z	CRACK			\mathbf{K}_{Io}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kai)	WIDTH (in.) W	THICK (in.) B	DEBIGN	LENGTH (in.) A	2.6 * (K, TYB)* (in.)	K. (Kalvin.)	K. MEAN	STAN	DATE	REFER
		4.00			56.0	3.000	1.500	CT	1.630	0.48	24.60			1977	AL001
		4.00			66.0	3.000	1.500	Çī	1.530	0.65	26.20			1977	AL001
		4.00		·	56.0	3.000	1.500	CT	1.630	0.62	25.60			1977	100.IA
		3.00			58.5	2.500	1.250	CT	1.280	0.38	22.90			1977	AL001
		3.00			68.6	2.500	1.250	CT	1.280	0.38	22.80	,		1977	AL001
		3.00			68.5	2.500	1.250	CT	1.280	0.41	23.70			1977	100TV
		3.00		·	6.89	2.500	1.250	CT	1.290	09'0	28.80			1977	100TV
		3.00		·	6.89	2.500	1.250	CT	1.300	0.62	26.80			1977	AL001
* A C C C C C C C C C C C C C C C C C C		3.00	E	,	6.89	2.500	1.250	CT	1.290	0.65	30.00			1977	100.TA
1991	Plate	2.00		7	59.3	1.500	0.750	CT	0.770	0.43	24.70	25.4	1.9	1977	100TY
		2.00			59.3	1.500	0.750	CT	0.780	0.46	25.30			1977	AL001
		2.00			59.3	1.500	0.750	CT	0.770	0.43	24.70			1977	100/IV
		4.00			2.69	3.000	1.500	CT	1.520	0.42	24.30			1977	AL001
		4.00			59.5	3.000	1.500	CT	1.520	0.42	24.50			1977	AL001
		4.00			59.5	3.000	1.500	CT	1.520	0.40	23.90			1977	1007Y
		2.00			6.63	1.500	0.750	CT	0.780	0.47	26.00			1977	AL001
		2.00			6.69	1.500	0.750	CT	0.780	0.48	26.20			1977	AI.001
		2.00			6.69	1.500	0.750	CT	0.780	0.48	26.20			1977	AL001

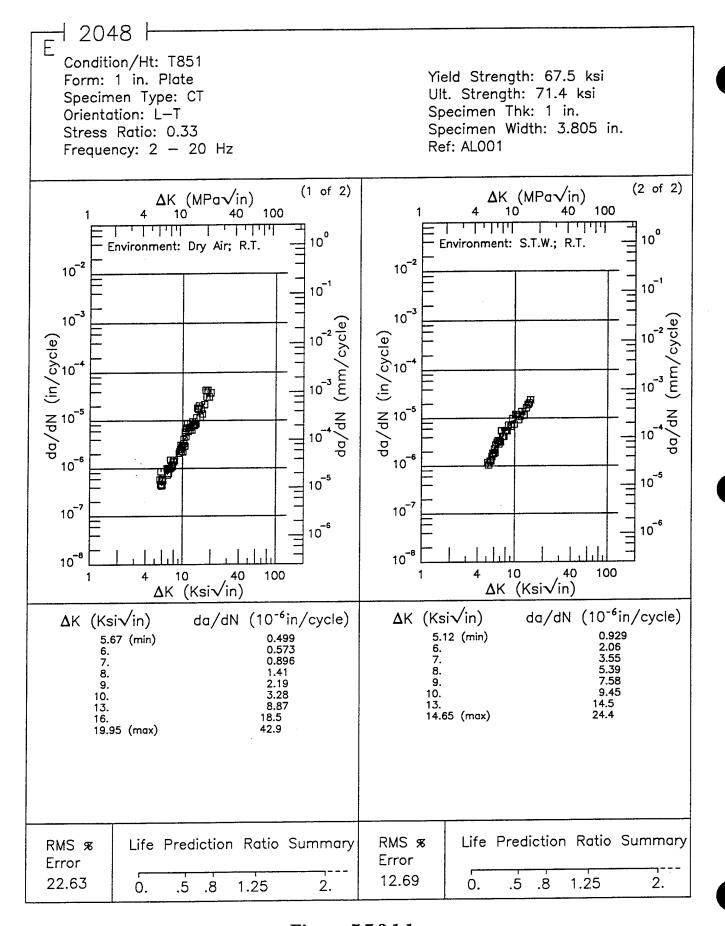


Figure 7.7.3.1.1



Condition/Ht: T851 Form: 4 in. Plate Specimen Type: CT Orientation: L-T Stress Ratio: 0.33 Frequency: 2 - 20 Hz

Yield Strength: 59.1 ksi Ult. Strength: 64.4 ksi Specimen Thk: 1 in. Specimen Width: 3.1 in.

Ref: AL001

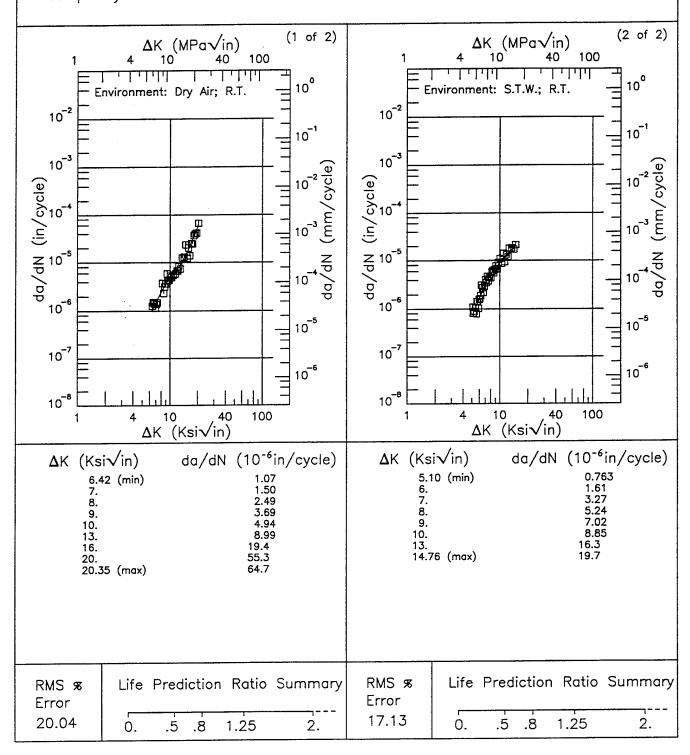


Figure 7.7.3.1.2

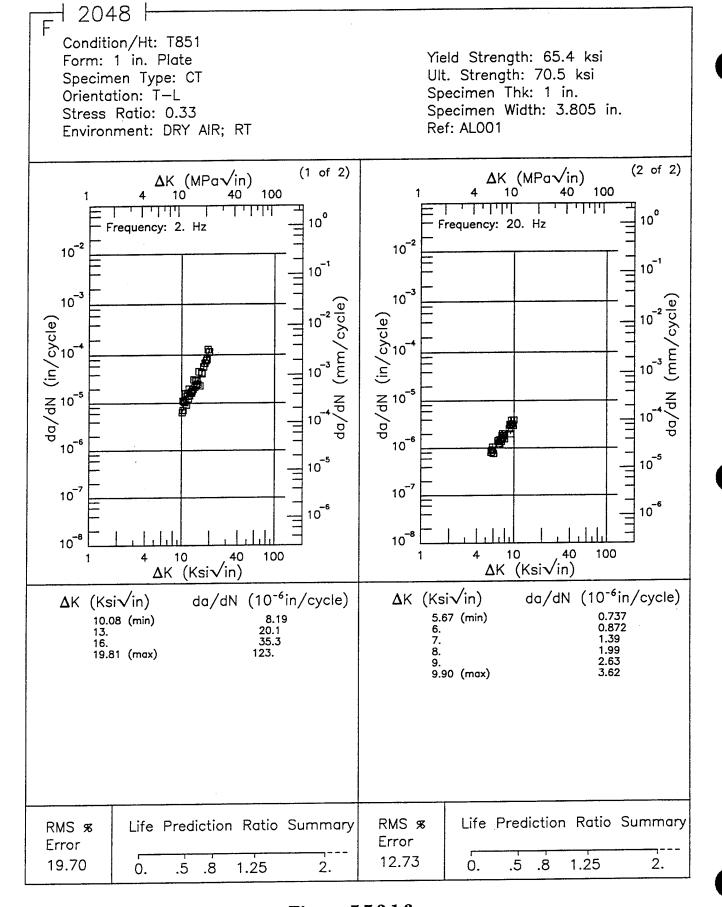


Figure 7.7.3.1.3

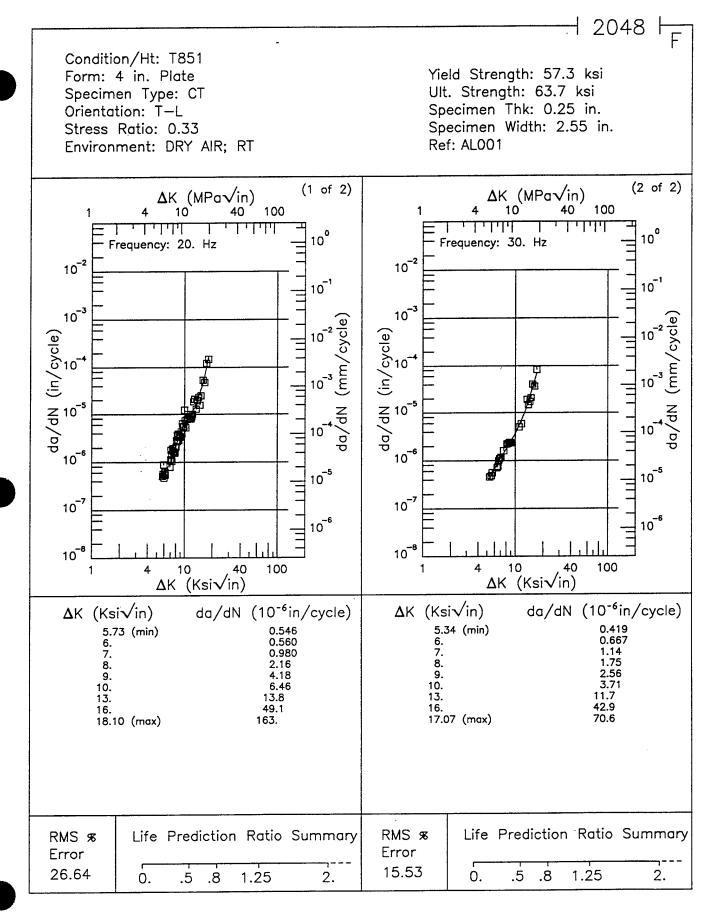


Figure 7.7.3.1.4

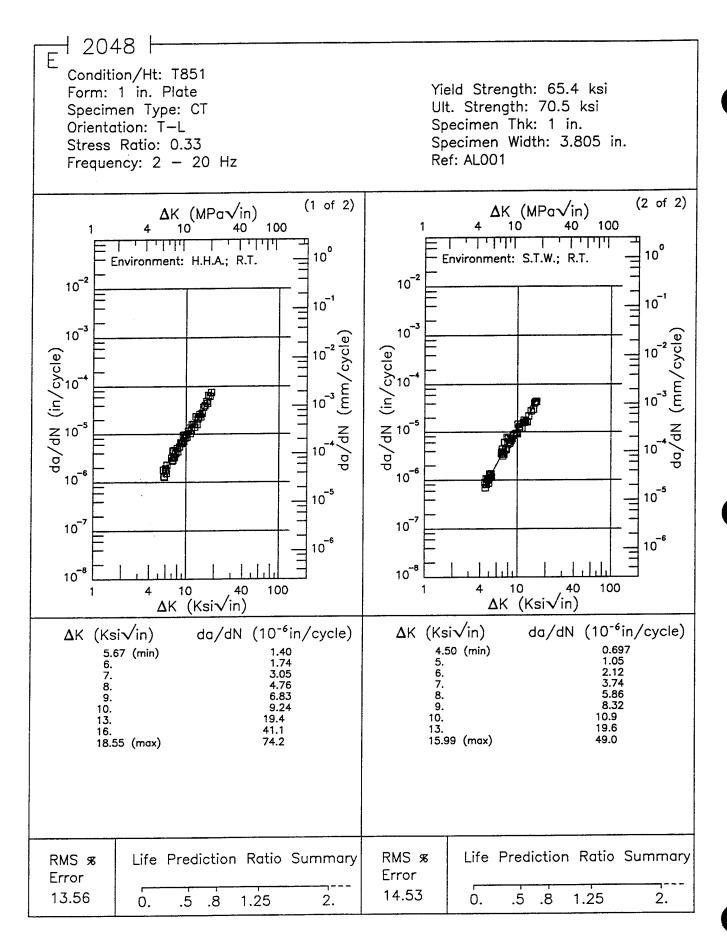


Figure 7.7.3.1.5

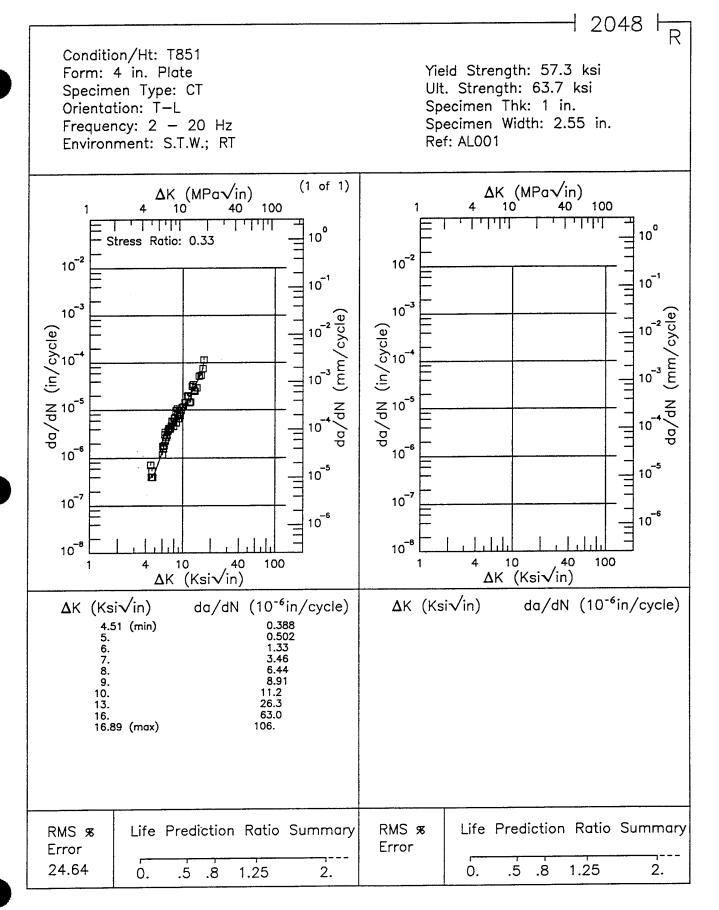


Figure 7.7.3.1.6

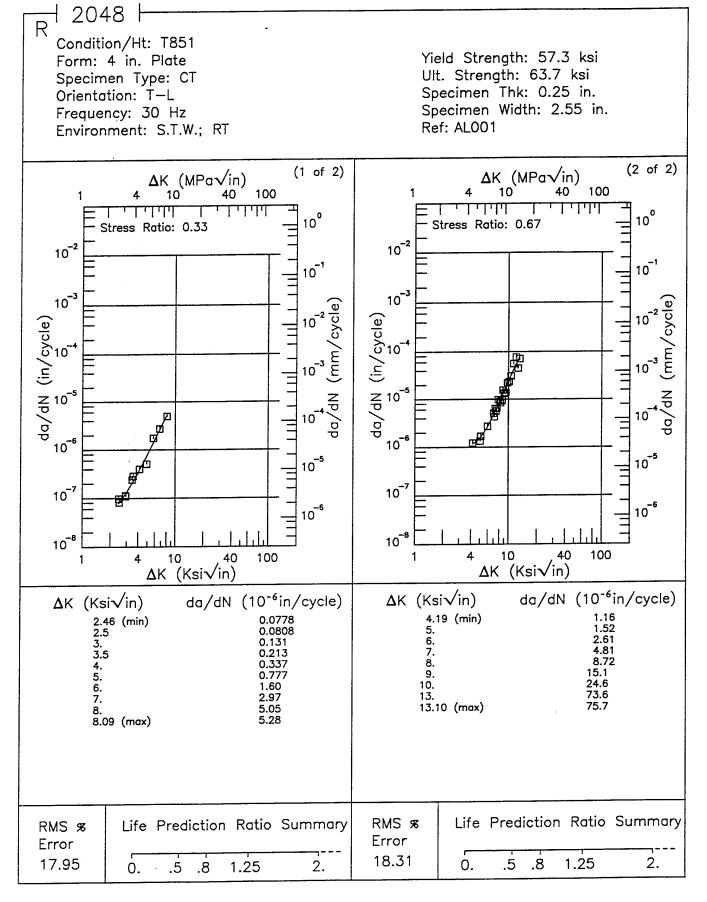


Figure 7.7.3.1.7

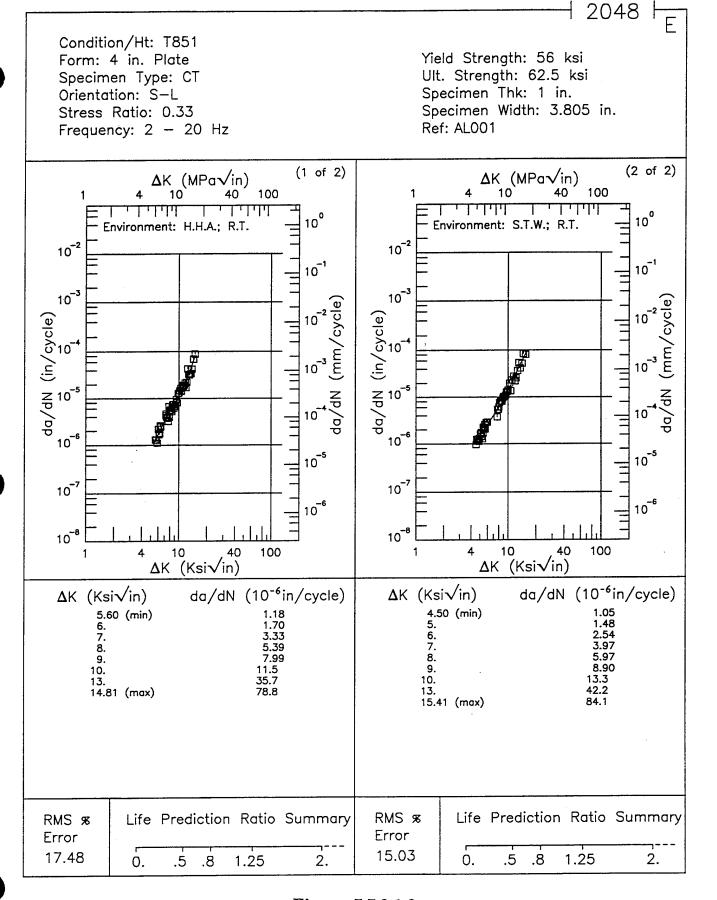


Figure 7.7.3.1.8

TABLE 7.8.1.2.1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2091 AT ROOM TEMPERATURE

	(a	(60.0							
I.A.	FCGR (10.º in/cycle)	ΔK Level (Ksiγin)	0.02	31.48	21.28		86.99	24.79	21.89	73.37
VT: H.E	7GR (10	K Level	10.0		6.52	7.55	10.05	5.71	69.9	10.52
ONME	FC	7	5.0		0.29	0.35	1.49			1.56
ENVIRONMENT: H.H.A.			2.5							
I	FREG	(HZ)		10	10	10	10	10	10	10
		R		0.1	0.	0.1	0.5	0.	0.1	0.5
: L-T	PRODUCT	FORM		FORGING		SHEET			PLATE	
ORIENTATION: L-T	CONDITION	HEAT TREATMENT		Tß			States transcon	18 2 (OF 12 HKS		

100.0

TABLE 7.8.1.2.2

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2091 AT ROOM TEMPERATURE

ORIENTATION: L-T

ENVIRONMENT: Lab Air

1 1	-				
		100.0			
		50.0	6	<i>le</i>)	
37.78	11.27	20.0	(Kstylin	" infeyo	¥
6.18	3.46	10.0	ΔK Level (Kstylii)	FCGR (10° infcycle)	
		5.0	4	FC	
		2.5			
2	1-10		HKEQ (HZ)	Caaa	
0.1	0.02		R		
SHEET	SHEET		FORM	TOTACOM	
T81 835F 32HRS	Т3		HEAT TREATMENT	NOTHINNOS	

TABLE 7.8.1.2.3

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK

ORIENTATION: T-L

ENVIRONMENT: H.H.A.

FREQ 2.6 5.0 AK 1.39 1.39				*	ALL VIEW INTERIOR IN LINEAR	******	A	reze.		
FORM R (Hz) 2.5 6.0 FORGING 0.1 10 0.18 SHEET 0.1 10 0.11 0.5 10 0.71 0.6 10 0.71 PLATE 0.1 10 0.14 PLATE 0.1 10 0.14 PLATE 0.1 10 0.14	CONDITION	PRODITICE		FREG		FC	<i>GR</i> (10	⁶ tı/cycl	()	
FORGING 0.1 10 5.6 5.0 6.0 18 0.1 1.39 0.5 1.39 1.39 1.39 1.39 1.39 1.39 1.39 1.39	HEAT TREATMENT	FORM	R	(HZ)		7	K Level	(Ksi _v /in	(
FORGING 0.1 10 0.18 SHEET 0.1 10 0.18 0.5 10 0.71 0.6 10 0.14 PLATE 0.1 10 0.14					2.5	6.0	10.0	20.0	50.0	100.0
SHEET 0.1 10 0.18 0.1 10 0.71 0.5 10 1.39 0. 10 0.14 PLATE 0.1 10 0.14	Т6	FORGING	0.1	10			1.69	49.06		
SHEET 0.1 10 0.71 0.5 10 1.39 0. 10 0.14 PLATE 0.1 10 0.14			0.	10		0.18	5.06	24.87		
0.6 10 1.39 0. 10 0.14 PLATE 0.1 10 0.14		SHEET	0.1	10		0.71	3.98			
0. 10 0.14 PLATE 0.1 10 0.14	TR 07ED 19UDG		0.6	10		1.39	7.9			
0.1 10	10 2 10 LAIN		0.	10		0.14	5.3	17.56		
19		PLATE	0.1	10			4.94	28.8		
10:0			0.6	12		0.67	7.52	95.59		

TABLE 7.8.1.2.4

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2091 AT ROOM TEMPERATURE

ORIENTATION: T.L

ENVIRONMENT: Lab Air

6))	50.0 100.0			
⁶ injeyel	(Ksiv/in	20.0	28.28	40.5	61.17
FCGR (10 ⁶ m/cycle)	ΔK Level $(Kst\sqrt{in})$	10.0	2.42	3.76	7.59
FC	7	6.0	0.46	0.41	0.58
		2.5			
FREQ	(HZ)		1-25	9	ıσ
1	K		0.02	0.1	0.1
PRODUCT	FORM		SHEET	SHEET	PLATE
CONDITION	HEAT TREATMENT		Т3	T81 335F 32HRS	T861 336F 16HRS

1 of 1

TABLE 7.8.1.2.5

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2091 AT ROOM TEMPERATURE

			100.0				
	(e)	(50.0				
I.A.	⁶ infcycl	(Ksi _V īn	20.0	30.73		131.91	
VT: H.F	FCGR (10 ⁶ ht/cycle)	ΔK Level (Ksi \sqrt{ln})	10.0	10.42	16.41	11.07	17.54
NME	FC	Δ.	6.0		2.65	0.84	2.55
ENVIRONMENT: H.H.A.			2.5				
E	FREG	(Hz)		10	10	10	10
	-	¥		0.	0.6	0.	9.0
: C-S	PRODUCT	FORM			SHEET		PLATE
ORIENTATION: C-S	CONDITION/	HEAT TREATMENT				18 276F 12HKS	

RESISTANCE CURVE

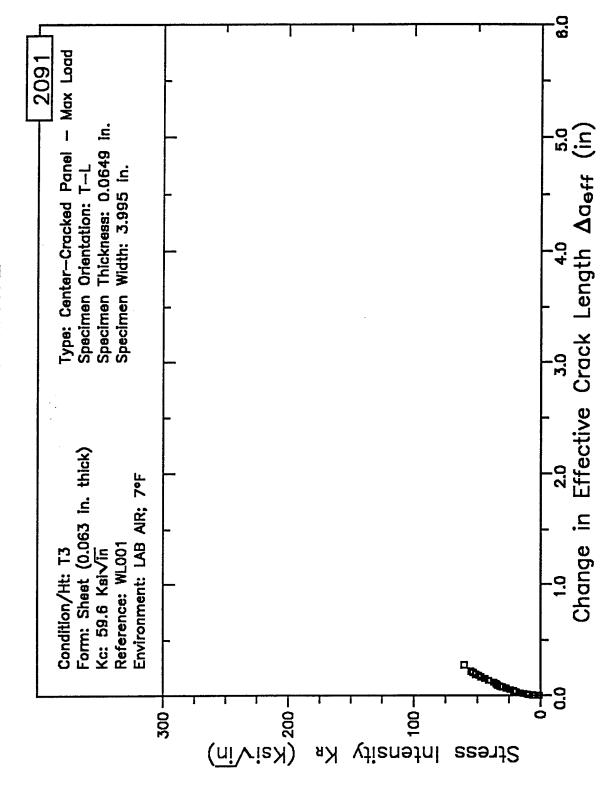


Figure 7.8.2.3.1

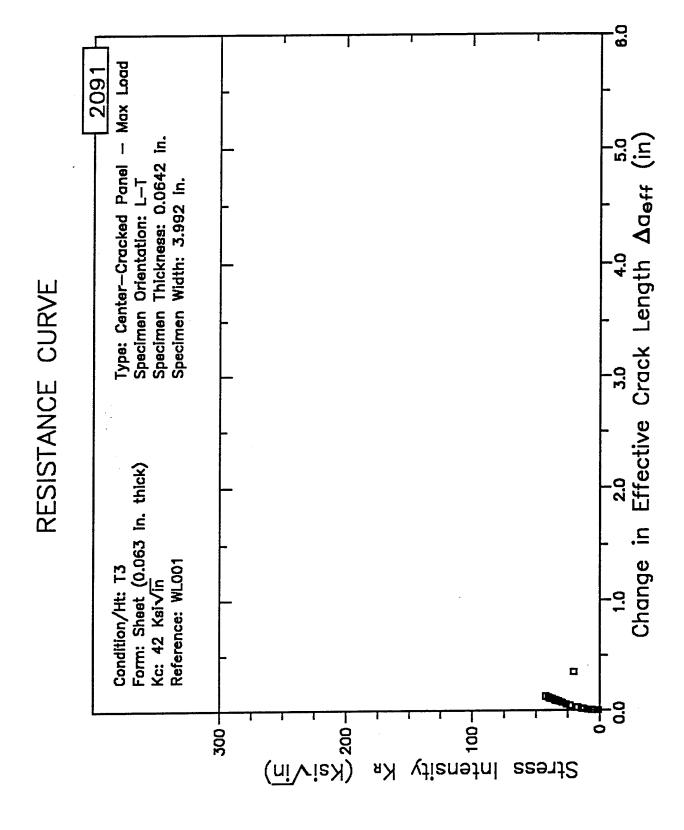


Figure 7.8.2.3.2

RESISTANCE CURVE

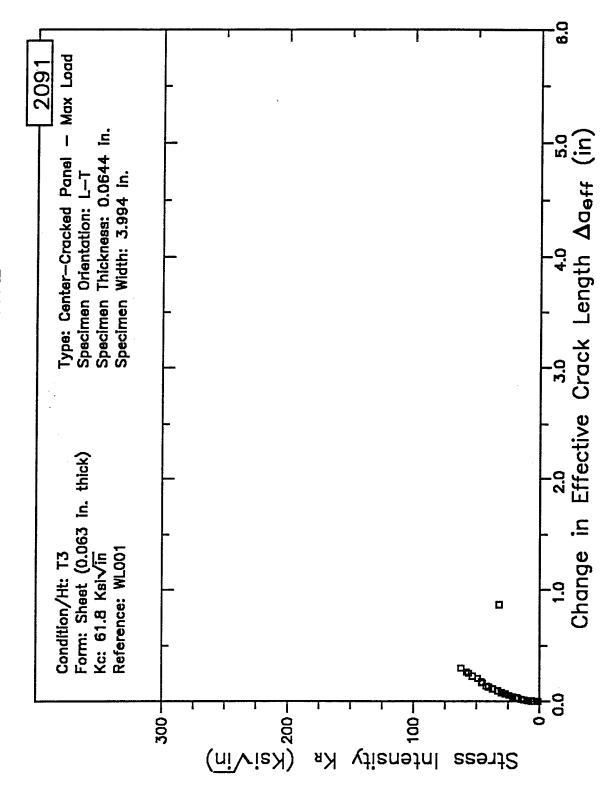


Figure 7.8.2.3.3

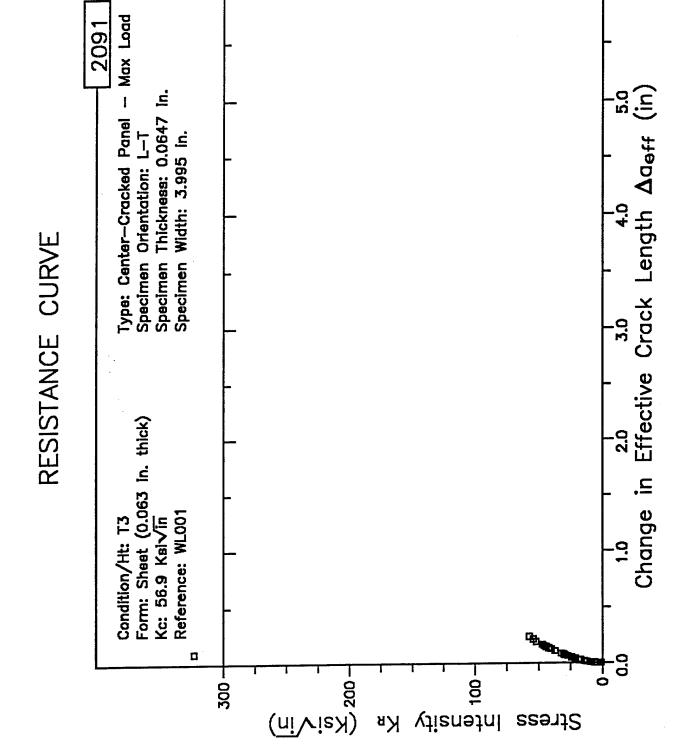


Figure 7.8.2.3.4



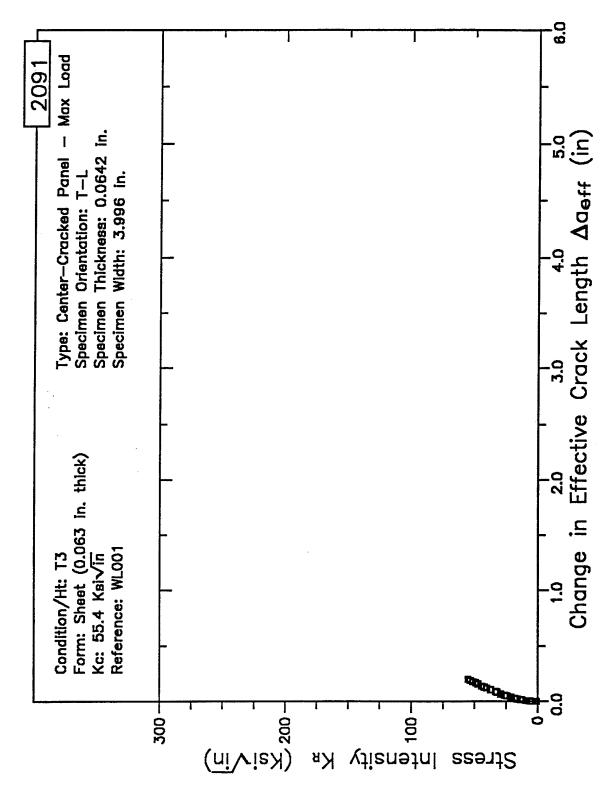


Figure 7.8.2.3.5

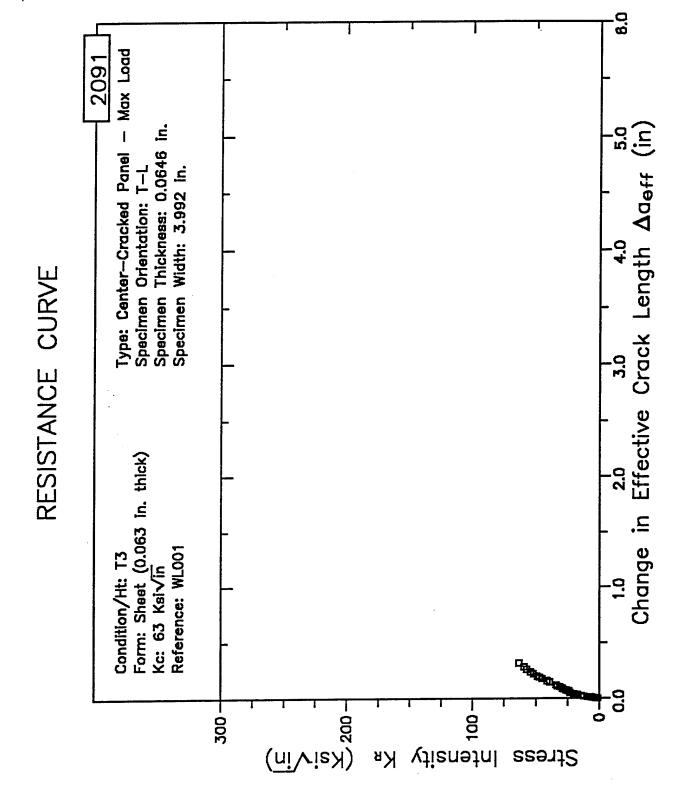


Figure 7.8.2.3.6



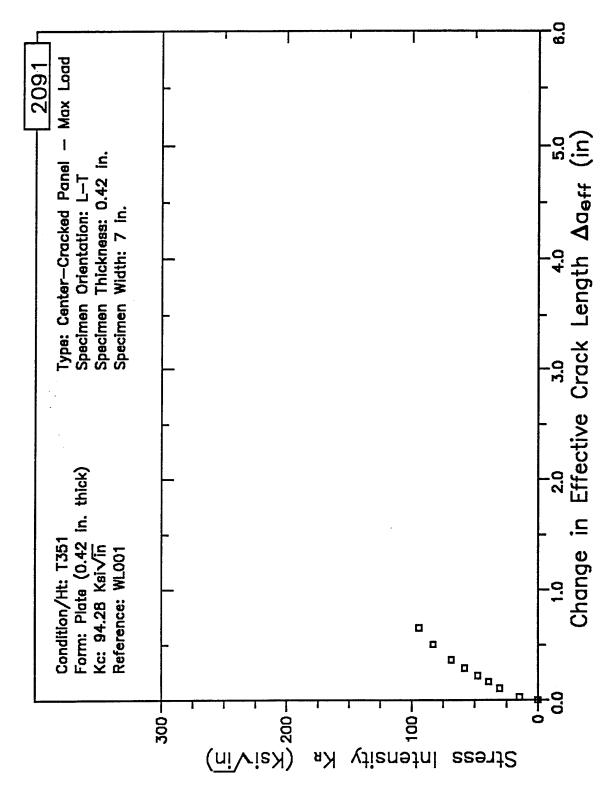


Figure 7.8.2.3.7



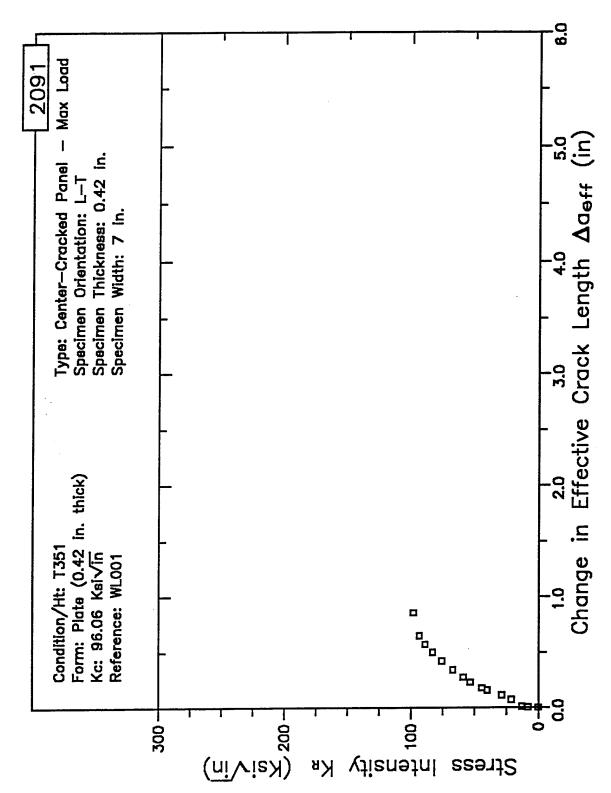


Figure 7.8.2.3.8

RESISTANCE CURVE

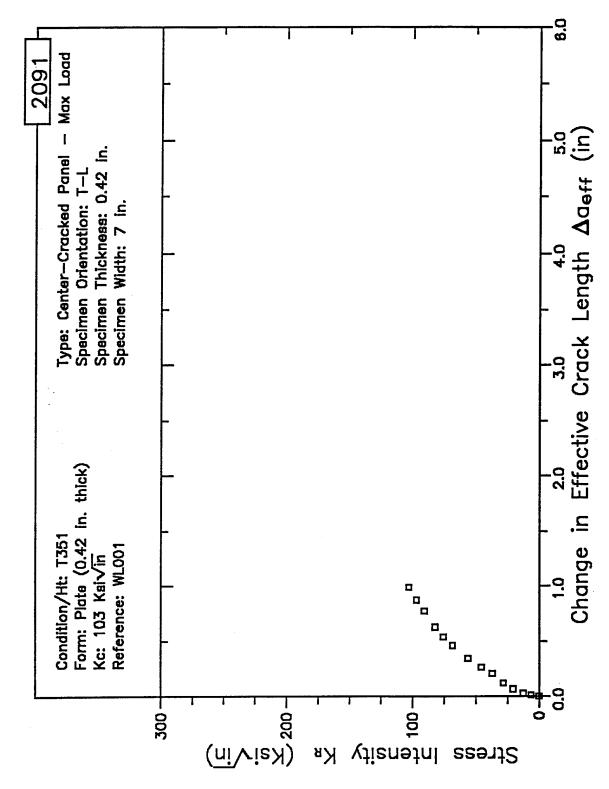


Figure 7.8.2.3.9

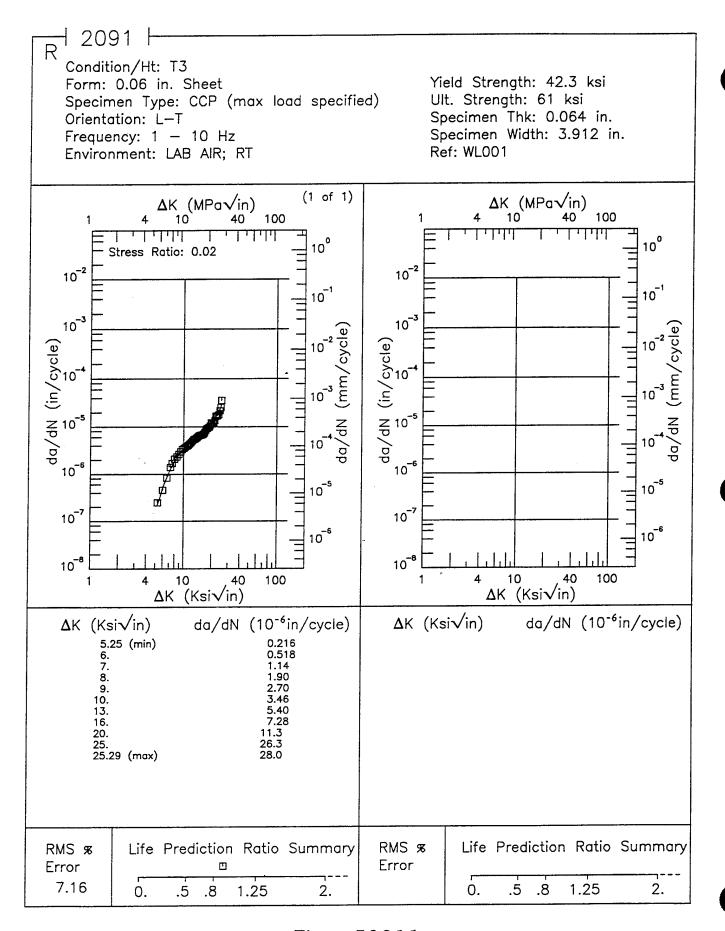


Figure 7.8.3.1.1

d 2091 ⊢R Condition/Ht: T3 Form: 0.06 in. Sheet Yield Strength: 42.5 ksi Specimen Type: CCP (max load specified) Ult. Strength: 57.3 ksi Specimen Thk: 0.071 in. Orientation: T-L. Specimen Width: 3.914 in. Frequency: 1 - 25 Hz Ref: WL001 Environment: LAB AIR; RT (1 of 1) ΔK (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 10 100 100 10 40 11111 1 1 1 1 1 1 1 100 Stress Ratio: 0.02 10-2 10-2 10-1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻³ 10⁻⁶ 10-6 10 5 10⁻⁵ 10⁻⁷ 10⁻⁷ 10⁻⁶ 10-6 10⁻⁸ 10 40 100 40 100 10 ∆K (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) ΔK (Ksi√in) 4.31 (min) 5. 6. 7. 8. 9. 0.126 0.465 16. 20. 24.44 (max) 150. Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error

Figure 7.8.3.1.2

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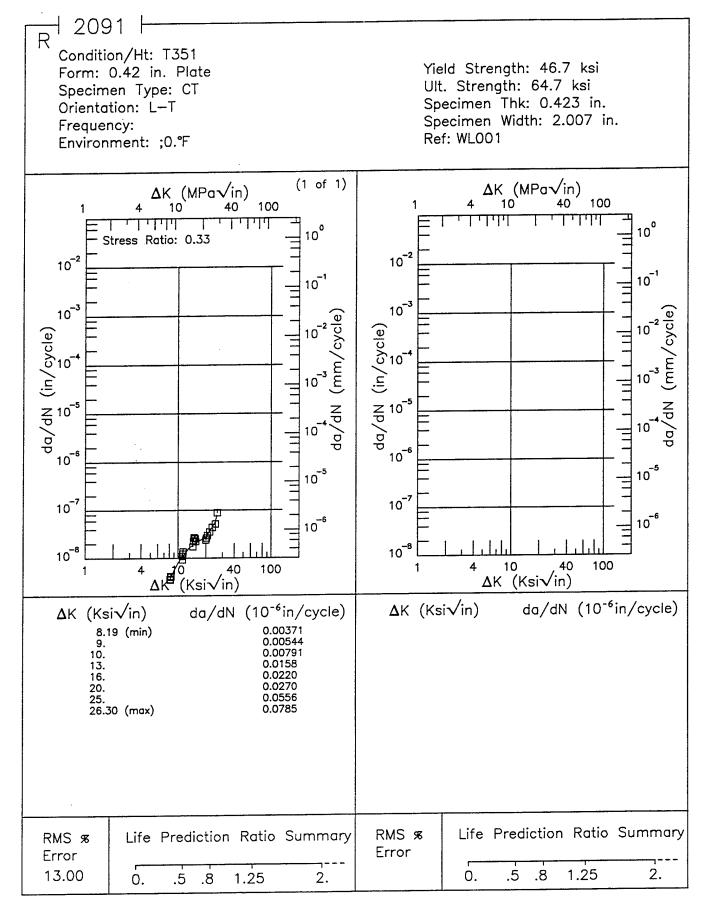


Figure 7.8.3.1.3

1 2091 Condition/Ht: T351 Yield Strength: 51.7 ksi Form: 0.42 in. Plate Ult. Strength: 64.1 ksi Specimen Type: CT Specimen Thk: 0.422 in. Orientation: T-L Specimen Width: 2.003 in. Frequency: Environment: ;0.°F Ref: WL001 (1 of 1) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 10 100 10 100 40 77777 11111 10° 10° Stress Ratio: 0.33 10⁻² 10-2 10⁻¹ 10⁻¹ 10⁻³ 10-3 10-2 da/dN (in/cycle) da/dN (in/cycle) 10⁻³ 10 6 10⁻⁶ 10⁻⁵ 10⁻⁵ 10⁻⁷ 10⁻⁷ 10-6 10⁻⁶ 10 8 10⁻⁸ 40 100 100 10 40 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) 12.58 (min) 13. 16. 20. 25. 0.00861 0.0108 0.0287 0.0461 0.0607 0.0868 34.00 (max) 0.135 Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error

2.

1.25

0.

.5 .8

2.

49.55

0.

.5

.8

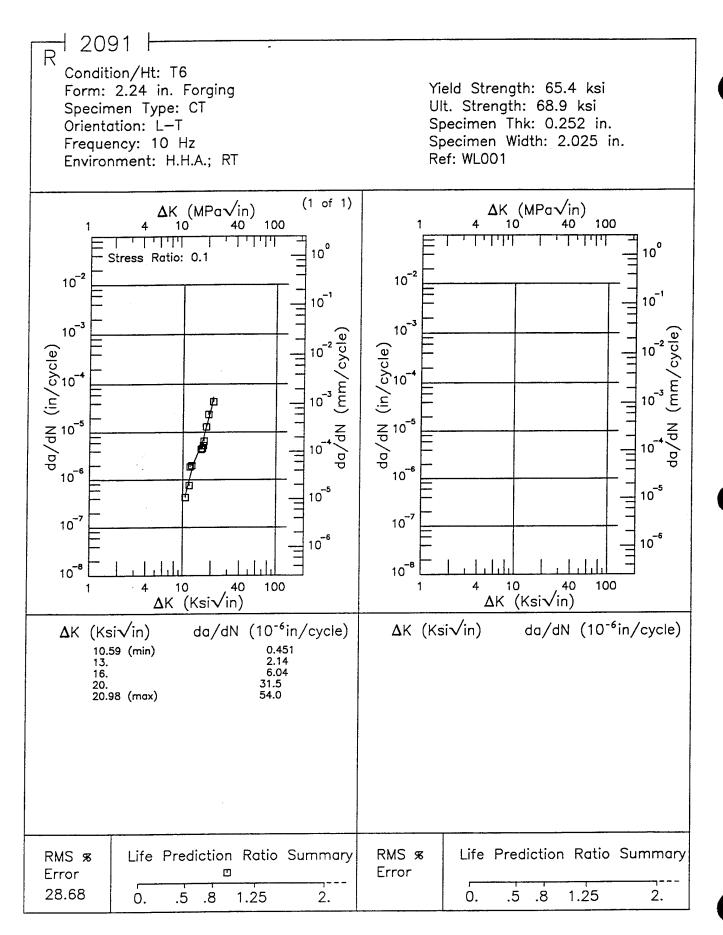


Figure 7.8.3.1.5

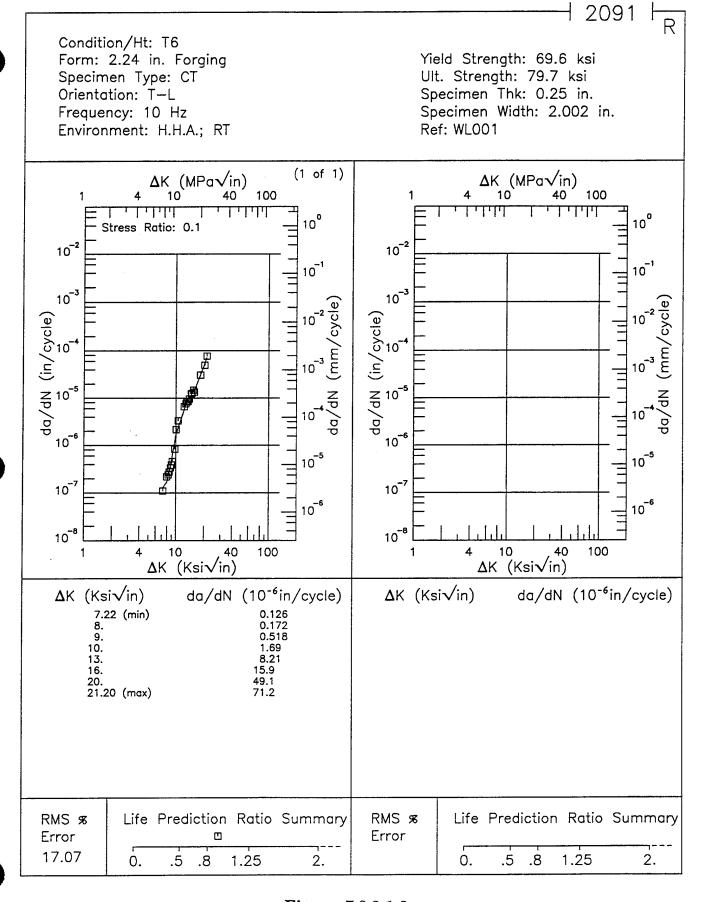


Figure 7.8.3.1.6

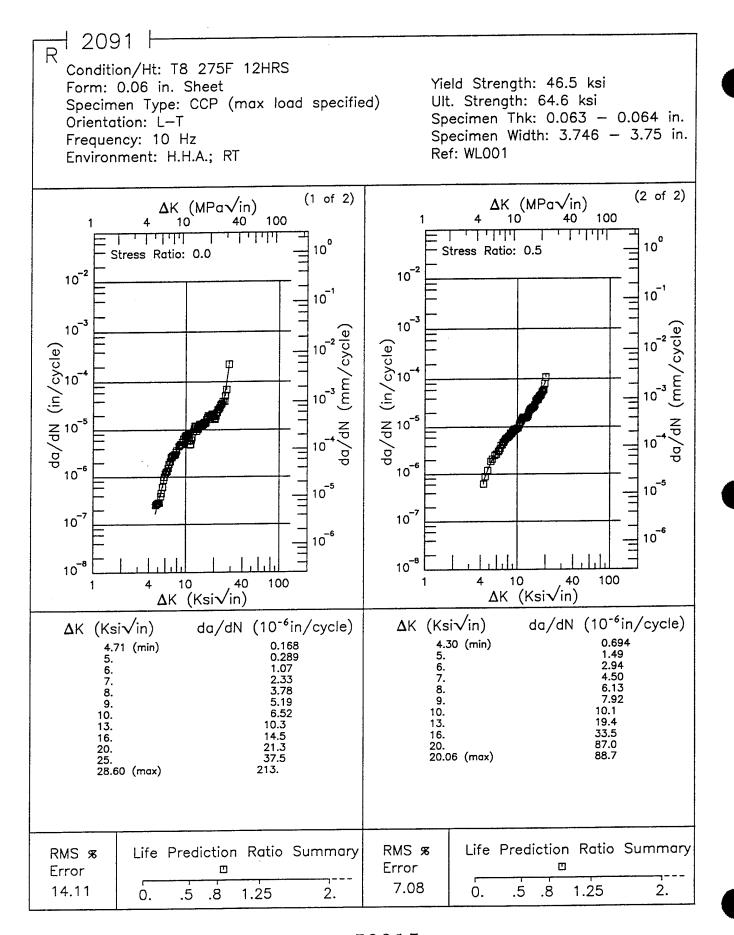


Figure 7.8.3.1.7

2091 | |

Condition/Ht: T8 275F 12HRS

Form: 0.06 in. Sheet

Specimen Type: CCP (max load specified)

Orientation: L—T Frequency: 10 Hz Environment: H.H.A.; RT Yield Strength: 47.7 ksi Ult. Strength: 66.2 ksi Specimen Thk: 0.063 in. Specimen Width: 3.003 in.

Ref: WL001

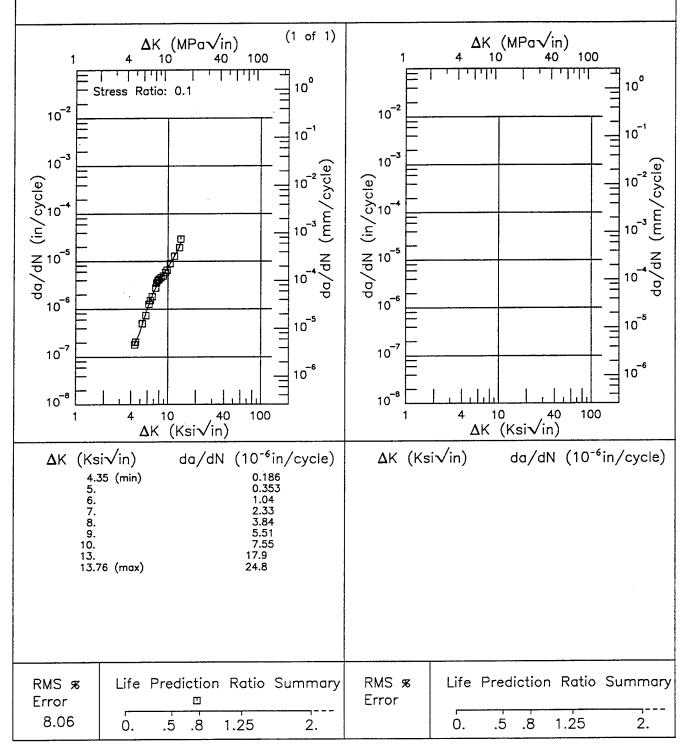


Figure 7.8.3.1.8

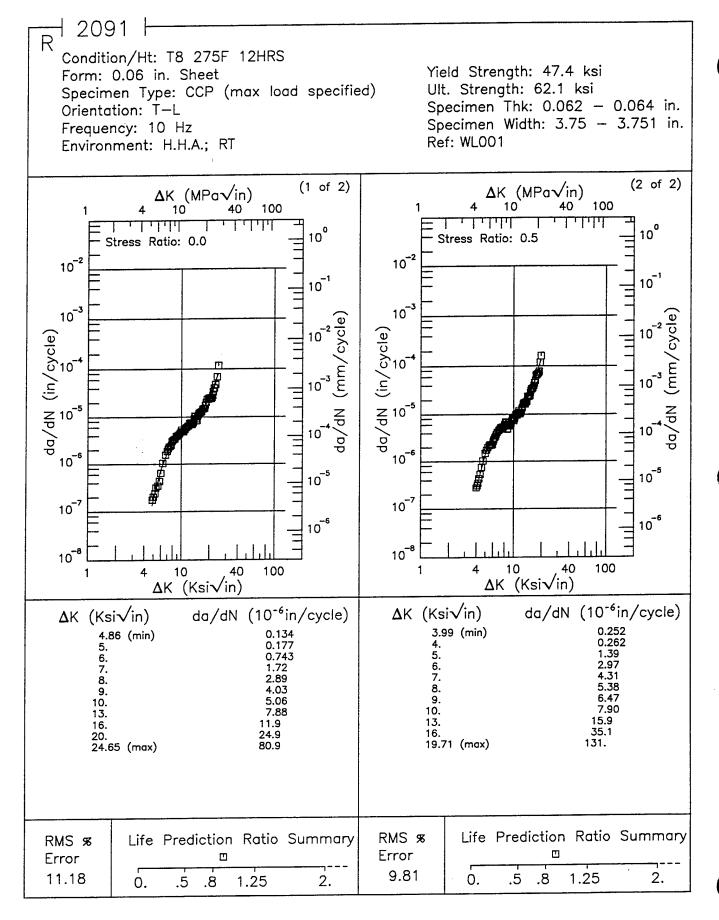


Figure 7.8.3.1.9

1 2091 H Condition/Ht: T8 275F 12HRS Yield Strength: 47.5 ksi Form: 0.06 in. Sheet Ult. Strength: 63 ksi Specimen Type: CCP (max load specified) Specimen Thk: 0.063 in. Orientation: T-L Specimen Width: 3 in. Frequency: 10 Hz Ref: WL001 Environment: H.H.A.; RT (1 of 1) ΔK (MPa√in) 10 40 Δ K (MPa \sqrt{in}) 100 100 10° 10⁰ Stress Ratio: 0.1 10⁻² 10-2 10-1 10⁻¹ 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10-6 10 -5 10⁻⁵ 10-7 10⁻⁷ 10 -6 10⁻⁶ 10 8 10-8 40 100 10 100 10 40 ΔK (Ksi√in) ΔK (Ksi√in) **Δ**K (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) 3.78 (min) 4. 5. 6. 7. 8. 3.07 10. 13. 15.10 (max)

Figure 7.8.3.1.10

2.

RMS %

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.5

.8

Error

Life Prediction Ratio Summary

1.25

RMS %

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.5

.8

Error 6.07 Life Prediction Ratio Summary

1.25

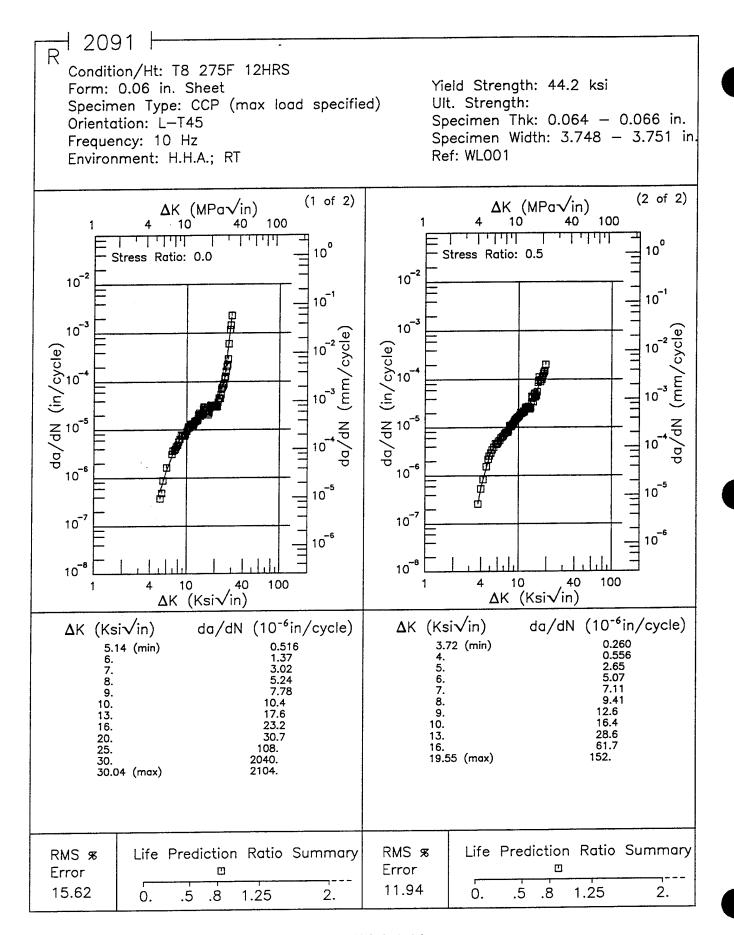


Figure 7.8.3.1.11

Yield Strength: 53 ksi Form: 0.42 in. Plate Ult. Strength: 70.8 ksi Specimen Type: CT Orientation: L-T Specimen Thk: 0.253 in. Specimen Width: 3.009 in. Frequency: 10 Hz Environment: H.H.A.; RT Ref: WL001 (1 of 1) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 10 100 10 40 100 40 10° 10⁰ Stress Ratio: 0.1 10 -2 10⁻² 10-1 10⁻¹ 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10 5 10⁻⁷ 10⁻⁷ 10 6 10 6 10⁻⁸ 10 8 10 40 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) $da/dN (10^{-6}in/cycle)$ ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 5.48 (min) 6. 7. 8. 2.59 10. 13. 16. 20. 25. 27.95 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 23.44 .5 .8 1.25 0. .5 .8 1.25 0. 2. 2.

Condition/Ht: T8 275F 12HRS

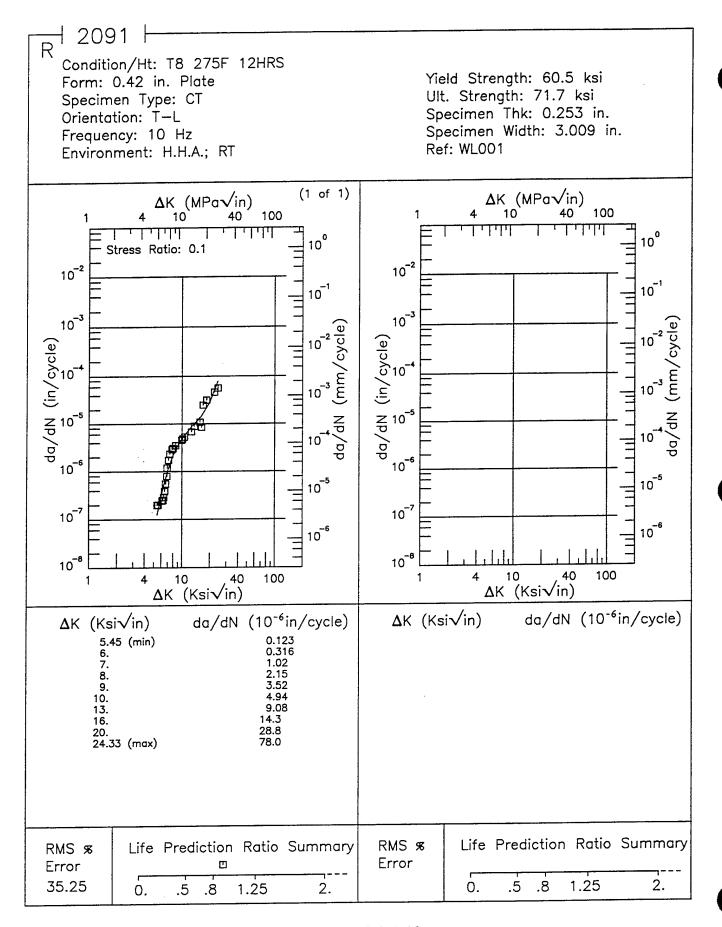


Figure 7.8.3.1.13

Condition/Ht: T8 275F 12HRS Form: 0.42 in. Plate Yield Strength: 52.4 ksi Ult. Strength: 69.2 ksi Specimen Type: CCP (max load specified) Orientation: L-T Specimen Thk: 0.25 - 0.251 in. Specimen Width: 3.757 - 3.759 in Frequency: 10 Hz Environment: H.H.A.; RT Ref: WL001 (1 of 2)(2 of 2) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 100 10 40 100 40 1 1 1 1 1 1 1 10⁰ 10⁰ Stress Ratio: 0.0 Stress Ratio: 0.5 10 -2 10-2 10 1 10⁻¹ 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10-3 10 10⁻⁶ 10-6 10 -5 10 -5 10⁻⁷ 10⁻⁷ 10 -6 10 6 10⁻⁸ 10⁻⁸ 10 10 40 100 40 100 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) **Δ**K (Ksi√in) da/dN ($10^{-6}in/cycle$) ΔK (Ksi√in) 0.161 0.430 5.44 (min) 4.34 (min) 6. 7. 8. 5. 6. 7. 8. 1.39 2.81 5.07 10. 13. 10. 16. 13. 16. 20. 25. 27.15 (max) 20. 89.2 22.54 (max) 158. 177. Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS & Error Error 6.81 22.12 1.25 0. .5 .8 1.25 0. .5 .8 2. 2.

Figure 7.8.3.1.14

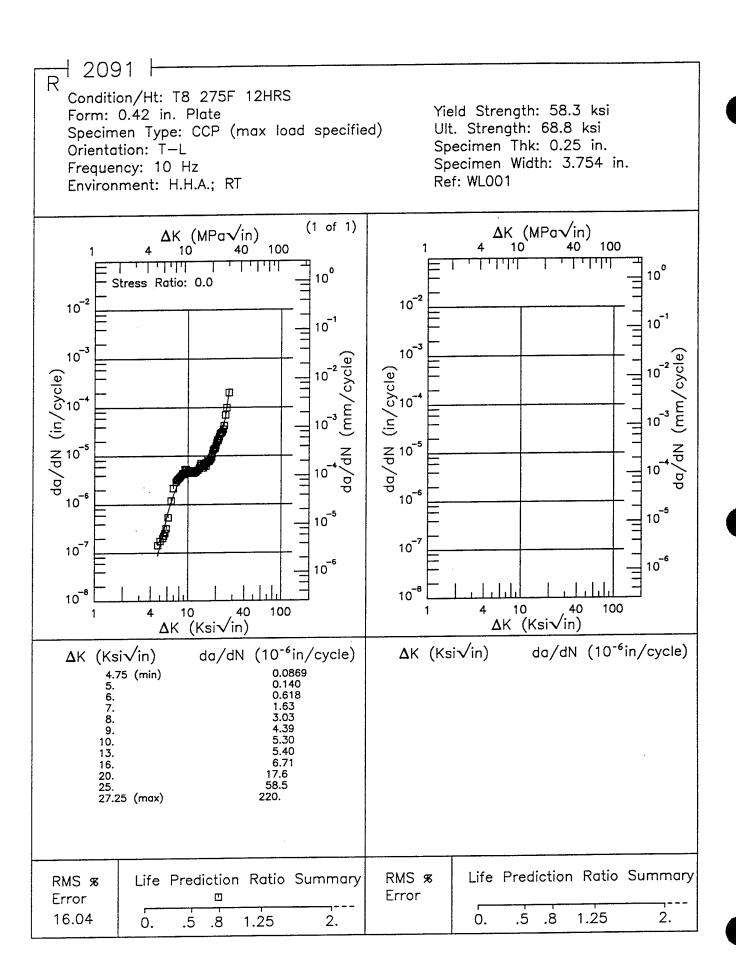


Figure 7.8.3.1.15

2091 Condition/Ht: T8 275F 12HRS Yield Strength: 58.3 ksi Form: 0.42 in. Plate Ult. Strength: 68.8 ksi Specimen Type: CCP (max load specified) Specimen Thk: 0.25 in. Orientation: T-L Specimen Width: 3.759 in. Frequency: 12 Hz Ref: WL001 Environment: H.H.A.; RT (1 of 1) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 10 100 10 100 40 10° 10° Stress Ratio: 0.5 10-2 10-2 10-1 10 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10-3 10⁻⁶ 10⁻⁶ 10⁻⁵ 10 5 10⁻⁷ 10⁻⁷ 10⁻⁶ 10 6 10⁻⁸ 10⁻⁸ 40 10 40 100 10 100 ΔK (Ksi√in) ΔK (Ksi√in) Δ K (Ksi \sqrt{in}) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) 4.69 (min) 5. 6. 7. 8. 9. 13. 16. 20. 21.31 (max) 211.

Figure 7.8.3.1.16

2.

Life Prediction Ratio Summary

1.25

RMS % Error

11.96

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.5 .8

RMS %

0.

.5 .8

Error

Life Prediction Ratio Summary

1.25

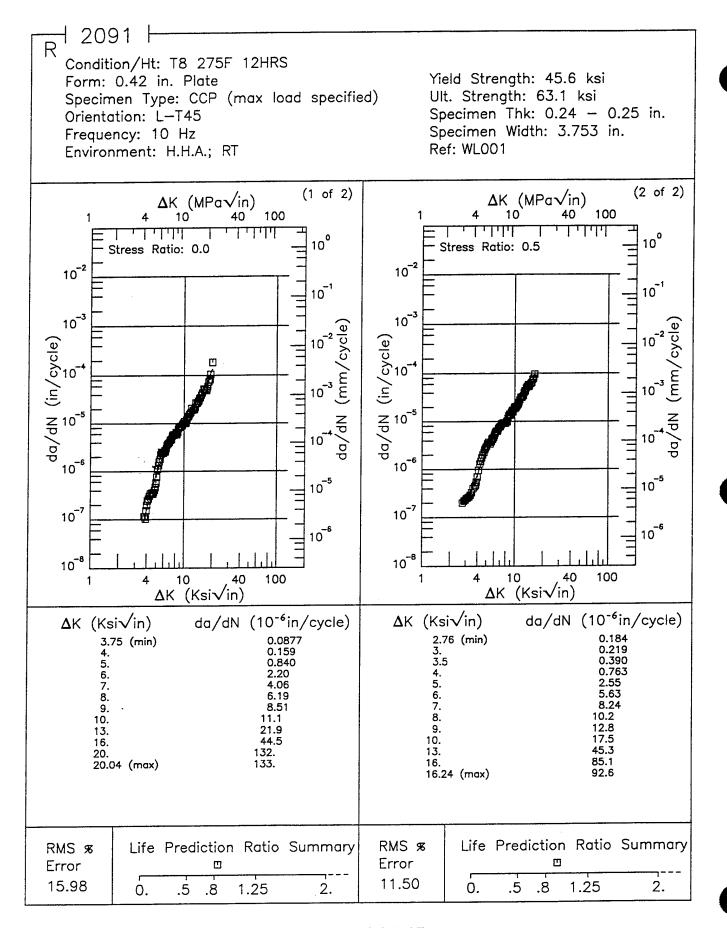


Figure 7.8.3.1.17

Yield Strength: 50.4 ksi Form: 0.06 in. Sheet Specimen Type: CCP (max load specified) Ult. Strength: 67.4 ksi Orientation: L-T Specimen Thk: 0.064 in. Specimen Width: 5.996 in. Frequency: 5 Hz Environment: LAB AIR; RT Ref: WL001 (1 of 1) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 10 100 100 40 11111 10⁰ 10° Stress Ratio: 0.1 10⁻² 10-2 10-1 10⁻¹ 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10-6 10⁻⁶ 10⁻⁵ 10 5 10⁻⁷ 10⁻⁷ 10 6 10 6 10⁻⁸ 10⁻⁸ 10 40 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) da/dN ($10^{-6}in/cycle$) da/dN (10⁻⁶in/cycle) Δ K (Ksi \sqrt{in}) **Δ**K (Ksi√in) 6.94 (min) 7. 8. 9. 2.01 2.10 10. 13. 16. 20. 25. 30. 32.83 (max) 1618. Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error 10.33 .5 1.25 .5 2. 0. .8 2. 0. 8. 1.25

Condition/Ht: T81 335F 32HRS

Figure 7.8.3.1.18

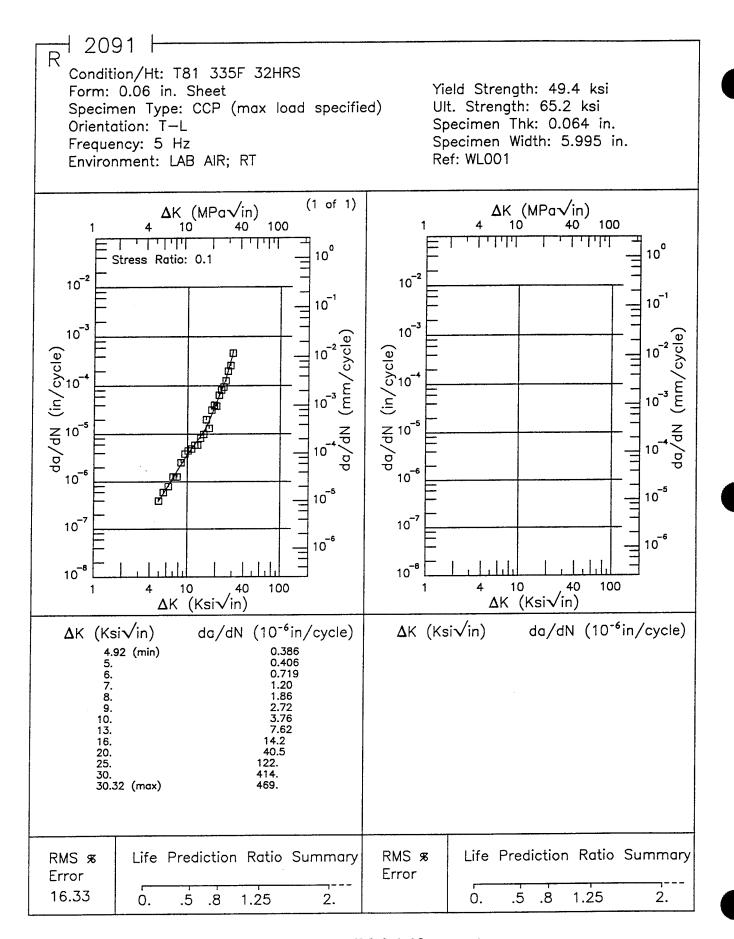


Figure 7.8.3.1.19

Yield Strength: 55.9 ksi Form: 0.42 in. Plate Ult. Strength: 71.9 ksi Specimen Type: CT Specimen Thk: 0.419 in. Orientation: L-T Specimen Width: 2.56 in. Frequency: 5 Hz Ref: WL001 Environment: LAB AIR; RT (1 of 1) ΔK (MPa√in) 10 40 Δ K (MPa \sqrt{in}) 100 100 10 40 1 1 1 1 1 1 10⁰ 10° Stress Ratio: 0.1 10-2 10-2 10-1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10-6 10-6 10 -5 10⁻⁷ 10⁻⁷ 10 -6 10⁻⁶ 10⁻⁸ 10⁻⁸ 10 40 100 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 5.76 (min) 6. 7. 8. 0.845 10. 13. 16. 190. 35. 35.52 (max) 4262. Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 38.43 1.25 .5 .8 2. 0. .5 .8 1.25 2. 0.

Condition/Ht: T851 335F 16HRS

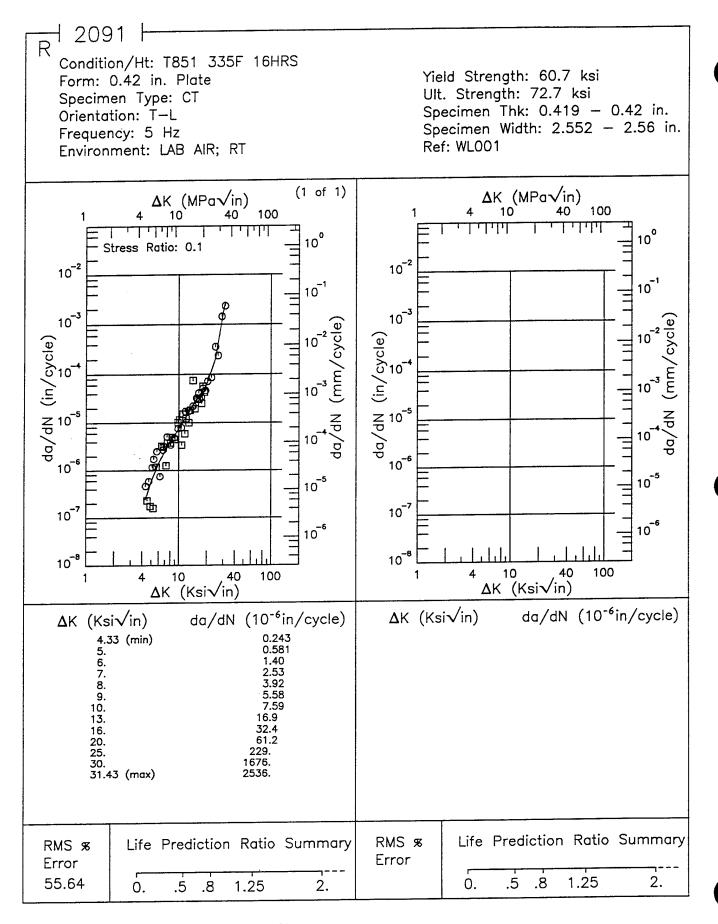


Figure 7.8.3.1.21

TABLE 7.9.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS FOR ALUMINUM 2000/6000 SERIES ALLOY 2124 AT ROOM TEMPERATURE

Product					$K_{L_{G}}$	$K_{Ic}~(ksi\!\sqrt{in})$	<u>a</u>)			
Form	Condition/Heat Treatment			S	pecime	Specimen Orientation	ntation			
			L-T			T-L			\mathbf{S} - $\mathbf{\Gamma}$	
		Mean K _{Ie}	Std Dev	u	Mean K _{le}	Std Dev	น	Mean K _{lo}	Std Dev	ц
	T851	29.7	2.8	364	25.1	2.3	362	21.7	2.1	393
Plate	T851 (417)	28.9	2.8	27	23.8	2.4	28	21.3	2.	19
	T861 (SP)	27.2	4.7	10	23.1	2.7	7	21.4	3.2	10

TABLE 7.9.1.2.1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2124 AT ROOM TEMPERATURE

ORIENTATION: L-T	: L-T		E E	NVIRC	NMEN	ENVIRONMENT: Dry Air	Air		
CONDITION	PRODUCT		FRED		FC	FCGR (10 ⁻⁶ infcycle)	⁶ injeyel	(9)	
HEAT TREATMENT	FORM	R	(Hz)		7	ΔK Level (Kstylin)	(Ksiy'in		
				2.5	5.0	10.0	20.0	50.0	100.0
		0.1	30				64.9		
		0.1	30	0.03	0.31	2.25	47.08		
TOF	,	0.1	30				39.11		
1001	FLAIR	0.5	30			6.3			
		0.5	30	0.08	0.62	6.97			
		0.6	30		-	7.65			

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2124 AT ROOM TEMPERATURE

	100.0
n(cycle) Ksty(ii)	20.0 50.0
ENVIRONMENT: H.H.A FCGR (10 ⁻⁶ in/cycle) ΔΚ Level (Ksiγlin)	5.0 10.0 1.37 12.01
ONMER FC	5.0
ENVIR	2.5
FREQ (Hz)	26
Н	0.33
PRODUCT FORM	PLATE
CONDITION/ HEAT TREATMENT	T861

1 of 1

TABLE 7.9.1.2.3

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK

	2124 AT ROOM TEMPERATURE	OOM TEN	IPERAT	URE					
ORIENTATION: L-T	i. L-T			ENVIRONMENT: S.T.W.	NME	T.S.T.	.w.		
					FC	GR (10	FCGR (10 ⁶ in/cycle)	(
CONDITION/ HEAT TREATMENT	PRODUCT FORM	Ħ	FREQ (Hz)		Δ	K Level	ΔK Level (Ksit√līi)		
				2.5	5.0	10.0	20.0	50.0	100.0
		0.1	1		0.23	5.67	47.64		
T851	PLATE	0.3	1		0.6	8.52	117.68		
		0.5	1		1.08	69'6			

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2124 AT ROOM TEMPERATURE

ORIENTATION: T-L

ENVIRONMENT: H.H.A.

			7	CAN VECCANIED A CENTRAL	77.11.47.47	T. T. T.	Aoa Bo		
NOITHENDS	PRODICE		RPFO		FC	GR (10	FCGR (10 ⁻⁶ in/cycle)	(6)	
HEAT TREATMENT	FORM	R	(ZH)		V	K Level	ΔK Level (Ksi√in)	(
				2.5	0'9	10.0	20.0	20.0	100,0
		0.1	1		0.24	5.65	78.67		
		0.1	10-33			5.21			
		0.1	10-33		0.28				
* ACE	r e	0.25	6-33	0.04					
1001	PLAIE	0.25	6-33		0.71	6.03			
		0.6	1		1.2	15.29			
		0.6	8-33	0.13					
		0.5	8-33		1.25	23.92			

1 of 1

TABLE 7.9.1.2.5

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2124 AT ROOM TEMPERATURE

ENVIRONMENT: S.T.W. ORIENTATION: T-L

CONDITION/ HEAT TREATMENT

TABLE 7.9.1.2.6

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2124 AT ROOM TEMPERATURE

ENVIRONMENT: Dry Air	FCGR (10°s in/cycle) ΔK Level (Ksi\/lii)	0.33 18.3 5.6 5.0 10.0 20.0 50.0 100
I: S-L	PRODUCT FORM	PLATE
ORIENTATION: S-1	CONDITION/ HEAT TREATMENT	T851

TABLE 7.9.1.2.7

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2124 AT ROOM TEMPERATURE

ORIENTATION: S-L

ENVIRONMENT: S.T.W.

$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		2	11.67	0.89		1 1	0.3	PLATE
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$.21		7.82	0.44		-	0.1	
R FREQ (Hz)	50.0		10.0	0'9	2.5			
FREG	iķlin)	vel (Ksi	$\Delta K Le$			(Hz)	4	FORM
	cycle)	10 ° in/a	CGR (H		FRFO		L

TABLE 7.9.1.2.8

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK

100.0 50.0 FCGR (10 6 injeyele) AK Level (Ksiylin) 20.0 ENVIRONMENT: Salt Fog 10.0 16.86 6.0 2124 AT ROOM TEMPERATURE 25.55 FREQ (Hz) 18.3 0.33ĸ PRODUCT FORM PLATE ORIENTATION: S-L CONDITION/ HEAT TREATMENT T851

TABLE 7.9.2.1

											_														
		REFER	86213	MPC01	GD011	GD011	MPC01	MPC01	MPC01	MPC01	MPC01	RA001	MPC01	RA001	MPC01	MPC01	84368	84368	MPC01	MPC01	RA002	MPC01	RA001	RA001	MPC01
	·	DATE	1973	1978	1979	1979	1978	1978	1978	1978	1978	1980	1978	1978	1978	1978	1972	1972	1978	1978	1978	1978	1980	1979	1978
		STAN DEV	:	-											2.8										
	K _{Ie}	K, MBAN	:												29.7										
		K. (Keivin.)	37.70	37.90	34.00	33.70	35.30	27.20	29.90	37.20	32.50	28.90	29.70	27.20	29.50	34.30	29.70	29.10	29.30	33.60	32.00	32.30	35.40	28.90	32.30
		2.5 * (K _{t./} TYS)* (in.)	1.82	1.26	96.0	0.93	1.02	0.60	0.70	1.08	0.81	0.64	0.67	0.67	0.66	0.90	0.67	0.65	0.65	0.84	0.77	0.78	0.96	0.62	0.75
	CRACK		2.146	3.084	1.545	1.632	1.497	1.596	1.503	1.505	1.567	1.513	1.480	1.048	1.013	1.500	1.550	1.520	1.502	1.484	1.530	1.565	1.522	1.637	1.516
4 K _{Io}	z	DESIGN	CT	CT	CT	CI	cr	CT	CT	CT	cr	СŢ	СŢ	CT	CT	CT	CT	CT	cr						
[2124	SPECIMEN	THICK (in.)	1.999	2.504	1.601	1.602	1.499	1.500	1.498	1.498	1.499	1.500	1.493	0.998	0.997	1.498	1.500	1.500	1.498	1.496	1.498	1.499	1.499	1.499	1.502
ALUMINUM	σ <u>α</u>	WIDTH (in.) W	3.990	6.047	3.000	3.003	2.994	3.011	3.006	3.010	3.014	2.999	3.020	1.998	1.986	3.000	3.000	3.000	3.004	3.029	3.000	3.010	3.001	3,000	2.973
ALU		YIELD STR (Kel)	44.2	62.8	66.0	65.0	65.1	55.2	55.6	66.3	56.5	56.7	56.8	66.8	66.9	56.9	67.1	57.1	57.2	57.2	67.3	57.4	57.4	67.6	57.7
		SPEC	T.L			•			•						<u>.</u>										
		TEST TEMP (°F)	82											E G	i i										
	PRODUCT	THICK (in.)	2.50	2.55	9.00	2.00	9.00	6.00	6.00	6.50	9.00	6.60	6.50	9:00	2.00	6.12	6.00	6.00	6.25	2.00	4.90	6.50	4.50	6.00	6.25
	PROI	FORM	Plate											Ē	Flate										
		CONDITION	T351 (417)											1 JOH	1991										

					ALU	ALUMINUM	I 2124	14 K _{Io}							
	PRO	PRODUCT				SO .	SPECIMEN	Z	CRACK			$\mathbf{K}_{\mathbf{I_o}}$			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (In.) A	2.6 • (K _{L,} TYS)* (in.)	K. (Kelvin.)	K, MEAN	STAN	DATE	REFER
		2.00			67.7	2.999	1.500	Ľ	1.499	0.63	29.10			1980	RA001
		6.50			67.8	3.022	1.497	Ç	1.481	0.65	29.50			1978	MPC01
		9.00			67.8	2.997	1.497	CT	1.621	99.0	29.90			1979	RA001
		4.62			67.9	2.998	1.500	CT	1.499	0.93	35.50			1978	MPC01
		5.60			68.0	3.010	1.497	cr	1.446	0.60	28.80			1978	MPC01
		6.60			58.1	2.971	1.498	СŢ	1.456	0.57	28.00			1978	MPC01
		5.25			58.1	3.026	1.500	CT	1.513	0.90	35.20			1978	MPC01
		2.00		4	58.1	3.000	1.498	CT	1.673	0.74	31.79			1978	FA001
		6.50			68.1	2.984	1.500	cr	1.522	0.84	33.90			1978	MPC01
		4.90			68.1	3.005	1.500	CT	1.498	0.67	27.90			1978	RA002
1881	Plate	4.25	R.T.	7	58.2	2.999	1.499	CT	1.661	99.0	29.70			1980	RA001
Cont'd	Cont'd	5.00	Cont'd	Cont'd	58.2	3.002	1.500	CT	1.561	0.48	25.90	Cont'd	Cont'd	1978	MPC01
		5.50			68.3	2.988	1.499	СT	1.464	0.57	28.40			1978	MPC01
		5.00			68.4	2.980	1.498	CT	1.490	0.67	30.90			1978	MPC01
		3.50			58.7	3.004	1.498	CT	1.502	0.72	31.90			1978	MPC01
		6.00			58.7	1.992	0.998	CT	1.016	0.50	26.80			1978	MPC01
		2.50			68.8	3.000	1.498	CT	1.666	09:0	28.90			1980	RA001
		9.00			58.8	2.000	0.995	СŢ	0.975	0.97	36.70			1980	RA001
		4.50			6.83	2.982	1.498	CT	1.491	0.75	32.70			1978	MPC01
		9.00			6.89	3.014	1.499	CT	1.537	0.67	30.90			1978	MPC01
		4.50			69.0	3.016	1.499	СŢ	1.478	0.70	31.60			1978	MPC01
		5.50			59.1	2.986	1.501	CT	1.623	0.67	28.60			1978	MPC01

					ALUI	ALUMINUM	2124	4 K _{Io}							
	PRO	PRODUCT				SO.	SPECIMEN	7	CRACK			K _{Io}		·	
CONDITION	FORM	ТНІСК (tn.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (fb.)	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 • (K _w ,TYS)* (in.)	K. (Kelvin.)	K. MEAN	STAN	DATE	REFER
		4.66			59.1	3.001	1.496	cr	1.517	0.75	32.40			1980	RA001
		6.60			69.1	3.000	1.501	СŢ	1.530	0.70	31.50			1978	MPC01
		90.9			59.2	2.977	1.495	Ğ	1.518	0.70	31.80			1978	MPC01
		6.00			59.3	2.986	1.493	cī	1.493	0.65	27.90			1978	MPC01
		4.31			59.3	2.000	1.000	CT	1.000	0.50	26.50			1972	84368
		4.31			59.3	2.000	1.000	CT	0.890	0.62	27.00			1972	84368
		4.00			59.3	3.000	1.499	CT	1.542	0.61	29.50			1978	RA001
		4.90	-		59.4	2.990	1.368	CT	1.465	0.67	29.00			1978	MPC01
		4.00			59.4	2.000	1.000	CT	1.000	0.61	29.40			1972	84368
		4.00			69.4	2.000	1.000	cr	1.000	0.69	28.90			1972	84368
T861	Plate	4.62	R.T.	7.7	59.5	2.988	1.498	CI	1.464	0.62	30.10			1978	MPC01
Cont'd	Cont'd	6.25	Cont'd	Cont'd	69.6	3.018	1.501	CT	1.509	0.81	34.50	Cont'd	Cont'd	1978	MPC01
		6.00			59.6	1.998	0.998	CT	1.033	0.73	32.30			1978	RA001
		4.0			59.6	2.999	1.499	cr	1.527	0.62	29.90			1980	RA001
		4.00			69.6	3.002	1.498	cr	1.542	98'0	98.50			1980	RA001
		4.50		•	59.6	2.997	1.498	CT	1.532	6.79	33.59			1979	RA001
		4.50			59.6	3.012	1.499	CT	1.476	0.70	31.70			1978	MPC01
		1.81			59.7	3.011	1.498	CT	1.626	09:0	29.80			1978	MPC01
		4.50		-	69.8	3.000	1.500	CT	1.530	0.76	33.10			1972	84368
		4.50			69.8	3.000	1.500	CT	1.510	0.71	31.90			1972	84368
		90.9		•	66.6	3.004	1.499	CT	1.532	0.70	91.80			1978	MPC01
		4.00			69.9	3.012	1.497	CT	1.566	0.70	32.30			1978	MPC01

3 of 61

					ALU	ALUMINUM	1 2124	4 K _{Ie}							
	PROI	PRODUCT				S S	SPECIMEN	z	CRACK			K _I °			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kai)	WIDTH (in.) W	THICK (in.)	DESIGN	LENGTH (in.) A	2.6 • (K _{k./} TYS)* (in.)	K. (Keivin.)	K. MBAN	STAN	DATE	REFER
		5.00			6.69	3.004	1.499	CT	1.532	0.60	29.80			1978	MPC01
		3.00			6.69	2.994	1.406	CT	1.529	99.0	30.79			1980	RA001
		3.00			6.63	3.001	1.376	CT	1.484	0.60	29.40			1980	RA001
		4.00			60.0	3.000	1.499	CT	1.489	0.62	29.90			1980	RA001
		6.60			60.1	2.996	1.502	cr	1.528	0.67	29.40			1978	MPC01
		6.50			60.1	3.012	1.601	CT	1.506	0.62	27.70			8/61	MPC01
		4.50			60.1	3.000	1.495	СT	1.533	69.0	31.60			1978	RA002
		2.50			60.3	3.002	1.102	CT	1.510	0.44	25.50		·	1980	RA001
		4.50			60.3	3.000	1.499	CT	1.536	0.67	62.82			8/61	RA002
		6.00			60.4	2.000	1.001	CT	1.011	99'0	28.79			1978	RA002
T851	Plate	6.50	R.T.	r.	60.4	3.016	1.500	CT	1.508	0.52	28.00			1978	MPC01
Cont'd	Cont'd	6.25	Cont'd	Cont'd	60.4	2.994	1.500	CT	1.497	0.75	33.50	Cont'd	Cont'd	1978	MPC01
		6.50			60.4	3.002	1.500	СT	1.631	0.62	90.30			1978	MPC01
		2.50			60.5	3.004	1.499	CT	1.523	0.44	25.40			1980	RA001
		4.50			60.5	2.978	1.500	CT	1.489	99.0	31.00			1978	MPC01
		6.50			9.09	3.004	1.500	CT	1.532	0.52	28.10			1978	MPC01
		3.54			60.6	2.994	1.497	CT	1.587	0.62	30.70			1978	MPC01
		6.60			9.09	3.026	1.500	CJ	1.513	09:0	30.20			1978	MPC01
		6.50			60.6	2.998	1.500	CT	1.529	0.48	26.90			1978	MPC01
		2.75	•		9.09	3.001	1.499	CT	1.691	0.48	26.79			1978	RA002
		3.00	,		60.6	3.000	1.400	CT	1.526	0.64	30.90			1980	RA001
		6.50			60.8	3.008	1.497	CT	1.534	0.48	27.10			1978	MPC01

					ALU	ALUMINUM	1 2124	24 K _{Io}							
	PROI	PRODUCT				on l	SPECIMEN	N.	CRACK			K _{Io}			
CONDITION	FORM	THICK (in.)	TEMP (°F)	SPEC	YIRLD BTR (Kal)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (In.) A	2.6 • (K _{a./} TXB)* (In.)	K. (Kalvin.)	K. MEAN	STAN	DATE	REFER
		3.62		1	8.09	3.006	1.496	CT	1.473	99.0	31.40			1978	MPC01
		3.50		L	8.09	3.004	1.496	CŢ	1.492	0.42	25.00			1980	RA001
		6.60		1	60.9	2.980	1.500	CŢ	1.520	0.48	27.00			1978	MPC01
		4.31			6.09	3.004	1.498	CT	1.592	0.62	28.10			1978	MPC01
		6.00			6.09	3.010	1.500	Į.	1.635	0.55	29.10			1978	MPC01
		6.50		L	609	3.028	1.601	CT	1.514	0.70	32.70			1978	MPC01
		4.00		1	6.09	2.999	1.499	cr	1.544	9.56	28.90			1978	RA001
		90.9			61.0	2.998	1.500	CT	1.659	0.70	32.50			1978	MPC01
		3.50		1	61.0	3.004	1.499	CT	1.502	0.72	33.00			1978	MPC01
		3.50			61.0	2.982	1.499	CT	1.461	0.70	32.50			1978	MPC01
1851	Plate	6.50	R.T.	1.7	61.1	3.032	1.500	CT	1.516	0.48	26.90			1978	MPC01
Cont'd	Cont'd	4.25	Cont'd	Cont'd	61.1	1.985	0.998	CT	1.032	0.78	34.60	Cont'd	Cont'd	1978	MPC01
		6.50			61.1	3.000	1.500	CT	1.500	0.53	28.10			1972	84368
		9.50			61.1	3.000	1.500	cr	1.500	0.55	28.80			1972	84368
		4.00			61.1	3.000	1.499	CT	1.671	0.73	33.09			1979	RA001
		4.00			61.2	3.000	1.497	cr	1.586	0.92	37.20			1978	RA001
		4.00		-	61.2	3.012	1.496	CT	1.536	0.67	31.90			1978	MPC01
		2.70		•	61.3	2.008	1.000	СŢ	1.024	0.81	35.50			1978	MPC01
		4.90			61.3	3.002	1.499	CT	1.550	0.50	27.50			1978	RA002
		3.00		•	61.3	3.002	1.497	CT	1.522	0.65	31.40			1980	RA001
		6.00			61.4	2.980	1.499	CT	1.520	0.70	32.80			1978	MPC01
		2.50			61.4	3.020	1.186	CT	1.540	0.55	29.10			1978	MPC01
	:														

		ŀ		ALUI	ALUMINUM	2124	14 K _{Ie}							
PRODUCT				1	20	SPECIMEN	Z	CRACK			$\mathbf{K}_{\mathbf{Io}}$,	
TEST THICK TEMP (in.) (°F)	TST F)	oc	SPEC 1	YIBLD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 * (K _{ke/} TYS)* (in.)	K. (Kelvin.)	K. MEAN	STAN	DATE	REFER
2.50			1	61.4	2.012	0.998	CT	1.006	0.44	26.00			1978	MPC01
6.50				61.4	3.031	1.500	CT	1.546	0.62	28.80			1978	MPC01
4.90			I	61.5	2.976	1.494	СŢ	1.488	0.48	27.50			1978	MPC01
4.00			1	61.5	3.001	1.496	CT	1.610	0.65	31.50			1979	RA001
3.00			I	61.5	3.002	1.379	CT	1.551	0.82	35.40			1980	RA001
6.50				61.6	3.026	1.500	CT	1.513	0.52	28.80			1978	MPC01
4.00				61.6	2.883	1.499	cr	1.660	0.65	29.20			1978	MPC01
6.50			·	61.6	3.018	1.601	CT	1.509	0.42	25.70	-		1978	MPC01
6.50				61.6	2.973	1.500	CT	1.516	0.48	27.40			1978	MPC01
2.00				61.6	2.979	1.501	CT	1.549	0.57	30.00			1978	MPC01
2.00 R.T.	Ę.			61.8	2.994	1.500	CT	1.637	0.69	30.20			1980	RA001
77		0	Cont'd	61.9	3.000	1.449	CT	1.536	0.63	31.29	Cont'd	Cont'd	1980	RA001
6.60			!	61.9	2.994	1.601	CT	1.627	0.62	29.00			1978	MPC01
2.50				61.9	3.001	1.499	CT	1.513	0.48	27.29			1980	RA001
4.25			ļ	61.9	3.018	1.502	CT	1.539	0.67	29.80			1978	MPC01
6.50				61.9	2.998	1.501	CT	1.529	0.55	29.10			1978	MPC01
3.00			1	61.9	2.980	1.245	CT	1.490	0.66	31.70			1978	MPC01
6.50				61.9	3.030	1.601	CT	1.515	0.48	27.30			1978	MPC01
6.00			!	61.9	3.020	1.502	CT	1.540	0.57	30.00			1978	MPC01
4.00			1	62.0	3.008	1.498	CT	1.504	0.78	35.30			1978	MPC01
2.00			!	62.0	2.991	1.499	CT	1.585	0.57	30.10			1978	MPC01
6.50				62.0	3.016	1.501	Į.	1.508	0.40	25.40			1978	MPC01

RA002 MPC01 MPC01 MPC01 RA002 MPC01 RA001 REFER RA001 DATE 1978 1978 1978 1978 1978 1978 1978 1978 1980 1978 1978 1978 1978 1978 1979 1978 1978 1978 1978 1978 1978 1978 Cont'd STAN Cont'd K, MEAN K Katolin.) 30.79 28.79 29.90 25.80 27.30 27.10 29.60 31.30 28.20 30.80 27.20 29.90 30.80 29.30 29.20 32.80 25.70 33.59 32.70 0.55 0.42 0.72 9.6 0.42 0.73 0.46 0.55 0.620.50 0,60 0.46 0.57 89 0.55 0.65 0.62 89. 0.53 0.67 0.67 CRACK LENGTH (In.) 1.516 1.506 1.572 1.477 1.526 1.519 1.520 1.519 1.523 1.503 1.559 1.562 1.485 1.528 1.602 1.502 1.524 1.513 1.436 1.600 1.507 1.504 K DESIGN Ç CT Ç 5 5 ธ Ç Ç ij Ç 당 Ç Ç ij Ç Ç Ç ರ ಕ Ç Ç C 2124 SPECIMEN THICK (In.) 1.500 1.493 1.500 1.500 1.500 1.500 1.503 1.500 1.499 1.498 1.300 1.495 1.501 1.601 1.500 1.500 1.498 1.499 1.490 1.500 1.500 1.501 **ALUMINUM** WIDTH (In.) 3.000 2.990 3.012 3.001 3.014 2.992 2.978 2.980 2.978 3.014 3.008 2.986 3.006 2.998 3.030 3.004 2.998 3.000 3.004 3.004 2.988 3.026 YIELD STR (Kst) 62.1 62.1 62.1 62.2 62.2 62.2 62.2 62.3 62.3 62.3 62.4 62.5 62.0 62.0 62.0 62.1 62.1 62.1 62.1 62.1 62.1 62.4 L-T Cont'd SPEC R.T. Cont'd TEST TEMP (°F) THICK (in.) 4.00 3.00 1.75 4.50 4.60 5.50 6.50 3.25 2.50 6.50 5.25 6.50 6.50 8.E 5.50 4.50 3.54 5.50 3.50 6.0 9.60 5.50 PRODUCT FORM Plate Cont'd CONDITION T851 Cont'd

					ALU	ALUMINUM	1 2124	14 K _{Io}								
	PRODUCT	UCT				SO	SPECIMEN	Z	CRACK			K _{Ie}				Į,
CONDITION	FORM	THICK (in.)	TEST TEMP (°P)	SPEC	YIELD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.5 • (K _{L,} TYS)* (ln.)	K. (Kølvin.)	K. MBAN	BTAN	DATE	REFER	
		6.00			62.5	3.010	1.499	CT	1.565	0.72	34.00			1978	MPC01	
		4.90			62.5	3.000	1.499	CT	1.603	02.0	28.00			1978	RA002	
		6.00			62.6	3.024	1.500	CT	1.542	0.48	28.00			1978	MPC01	
		6.50	· · ·		62.6	3,000	1.500	СТ	2.100	99.0	29.70			1978	GD003	
		5.50			62.6	3.000	1.500	CT	2.100	0.62	31.20			1978	GD003	
		6.50			62.6	2.986	1.500	CT	1.523	0.62	28.80			1978	MPC01	
		6.00		1	62.6	3.016	1.500	CT	1.508	0.44	26.90			1978	MPC01	
		4.75			62.6	3.000	1.500	CT	1.546	99'0	32.20			1980	RA001	
		6.60			62.6	3.000	1.500	СТ	2.100	0.58	30.20			1978	GD003	
		3.12			62.7	3.015	1.377	CT	1.447	0.66	32.00			1978	MPC01	
T851	Plate	3.12	R.T.	7	62.7	3.030	1.498	CT	1.516	0.62	91.60			1978	MPC01	···
Cont'd	Cont'd	3.00	Cont'd	Cont'd	62.7	3.002	1.188	CT	1.581	0.51	28.60	Cont'd	Cont'd	1978	RA002	
		3.75			62.8	3.029	1.497	CT	1.575	0.62	28.90			1978	MPC01	
		4.00			62.8	3.001	1,251	CT	1.525	0.47	27.30			1980	RA001	
		2:00			62.9	3.032	1.500	CT	1.516	0.48	28.20			1978	MPC01	
		2.00			62.9	2.972	1.500	CT	1.486	0.46	27.20			1978	MPC01	
		2.50		k	62.9	2.000	1.000	CT	ï	0.67	32.10			1974	88742	
		6.50			62.9	3.024	1.500	CT	1.512	0.48	28.00			1978	MPC01	
		3.12		L	62.9	3.002	1.498	СŢ	1.514	0.67	32.59			1980	RA001	
		4.25		<u>.</u>	67.9	3.039	1.500	CT	1.550	0.48	27.80			1978	MPC01	
		2.60			6.29	2.000	1.000	CT	•	0.74	33.70			1974	88742	
		2.50			62.9	2.000	1.000	CT	••	0.67	32.00			1974	88742	

		REFER	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	RA001	RA001	MPC01	84368	84368	RA001	MPC01	MPC01	RA002	RA001	RA001
																	_							
		DATE	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1980	1978	1972	1972	1980	1978	1978	1978	1978	1979
		STAN DEV												Cont'd										
	Kı	K. MEAN		•										Cont'd										
		K. (Kelvin.)	32.10	29.10	31.70	27.90	28.40	30.20	27.40	30.20	30.50	31.40	31.00	28.50	28.29	30.30	28.70	27.20	30.79	29.20	31.60	29.29	29.10	26.50
		2.6 * (K, TYS)* (in.)	0.62	0.62	0.62	0.48	09'0	0.55	0.46	0.65	0.67	0.60	0.60	0.50	0.50	0.55	0.44	0.46	0.59	0.50	09:0	0.63	0.62	0.43
	CRACK		1.482	1.635	1.561	1.503	1.674	1.510	1.518	1.508	1.492	1.534	1.506	1.691	1.520	1.511	1.520	1.540	1.568	1.523	1.567	1.517	1.583	1.019
4 K _{Ie}	z	DESIGN	CT	CT	CI	CT	CT	CT	cr	CT	CT	CT	cT	CT	СТ	СŢ	СŢ	cr	CT	CT	CT	cr	CT	CT.
2124	SPECIMEN	THICK (in.) B	1.498	1.500	1.499	1.500	1.201	1.499	1.500	1.500	1.500	1.500	1.500	1.497	1.483	1.499	1.500	1.500	1.483	1.500	1.499	1.500	1.496	0.999
ALUMINUM	S	WIDTH (in.)	3.025	3.010	3.002	3.006	2.970	3.020	2.977	3.016	2.984	3.008	3.012	3.000	3.002	3.022	3.000	3.000	3.000	2.986	3.014	3.004	3.001	1.998
ALU		YIELD STR (Kai)	63.0	63.0	63.1	63.1	63.1	63.1	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.4	63.4	63.4	63.4	63.5	63.5	63.5	63.6	63.6
		SPEC	1			· · · · · ·							7	Cont'd										
		TEST TEMP (°F)			***								R.T.	Cont'd								į		
	ucr	THICK (in.)	3.12	4.25	6.00	2.00	2.50	2.00	4.25	4.60	4.50	6.00	4,50	2.00	2.75	4.50	4.50	4.50	1.50	4.25	4.00	1.76	1.75	3.00
	PRODUCT	FORM		•									Plate	Cont'd										
		CONDITION											7851	Cont'd										

					ALUI	ALUMINUM	1 2124	24 K _{Io}								
	PROI	PRODUCT				S	SPECIMEN	Z	CRACK			K _{lo}				
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 • (K _{L,} ,7YS) ² (in.)	K. (Kelvin.)	K. MBAN	STAN	DATE	REFER	
		2.75	<u> </u>		63.6	2.999	1.496	CT	1.543	0.54	29.60			1980	RA001	
		3.00		I	63.6	2.986	1.499	CT	1.523	0.55	29.90			1978	MPC01	
		3.12			63.6	2.985	1.499	CT	1.582	0.70	33.80			1978	MPC01	
		2.50			63.7	3.002	1.499	CT	1.561	0.52	29.70			1978	MPC01	
		4.00			63.7	3.019	1.499	CT	1.670	0.42	26.70			1978	MPC01	
		2.50			63.7	3.001	1.495	СТ	1.607	0.53	29.40			1978	RA002	
		2.00			63.8	3.016	1.498	cr	1.508	0.46	27.60			1978	MPC01	
		2.50			63.8	3.010	1.498	CT	1.535	0.52	29.40			1978	MPC01	
		3.62			63.8	2.995	1.499	CT	1.529	0.49	28.29			1980	RA001	
		2.50			63.8	3.000	1.499	CT	1.584	0.56	30.20			1978	RA002	
T861	Plate	3.50	R.T.		63.9	3.000	1.500	$^{\mathrm{cr}}$	1.520	0.61	31.50			1972	84368	
Cont'd	Cont'd	2.35	Cont'd	Cont'd	63.9	3.001	1.500	СТ	1.581	0.61	29.00	Cont'd	Cont'd	1978	RA002	
		3.00			63.9	3.000	1.397	CT	1.532	0.54	29.90			1980	RA001	
		4.25			63.9	3.014	1.501	CT	1.507	0.62	32.50			1978	MPC01	
		3.50			63.9	3.000	1.500	CT	1.510	0.61	31.60			1972	84368	
		3.00			64.0	2.996	1.400	CŢ	1.618	0.50	29.40			1978	MPC01	
		4.25		1	64.0	3.020	1.500	CT	1.510	0.62	32.30			1978	MPC01	
		3.00		<u>'</u>	64.0	3.021	1.247	CT	1.450	0.44	27.50			1978	MPC01	
		4.90			64.0	3.000	1.499	CŢ	1.672	0.56	30.29	··		1978	RA002	
		6.50			64.0	2.977	1.500	Çī	1.518	0.46	27.90	~ ···,		1978	MPC01	
		3.00		.	64.1	2.999	1.488	СT	1.674	0.69	33.70			1978	RA001	
		2.50			64.1	3.000	1.499	CT	1.623	0.56	30.40			1978	RA002	

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		REFER	RA002	RA001	MPC01	RA002	RA001	MPC01	RA001	84368	MPC01	MPC01	RA001	MPC01	MPC01	MPC01	MPC01	RA001	MPC01	MPC01	RA001	MPC01	MPC01	RA001
		DATE	1978	1980	1978	1978	1978	1978	1980	1972	1978	1978	1980	1978	1978	1978	1978	1980	1978	1978	1980	1978	1978	1980
,		STAN DEV												Cont'd										
	K _{Io}	K. MEAN												Cont'd										
		K. (Keivin.)	18.29	30.70	27.90	26.79	33.40	25.00	25.70	27.40	27.80	28.50	29.20	30.80	28.60	29.50	32.20	29.79	81.60	29.60	27.10	24.00	29.40	25.70
		2.5 * (K _{L/} TYS)* (in.)	0.20	0.57	0.46	0.43	0.67	96.0	0.40	0.46	0.46	87.0	19:0	99'0	0.48	09'0	79'0	63.0	<i>1</i> 9'0	09'0	0.44	0.34	0.50	0.39
	CRACK	LENGTH (in.) A	0.790	1.548	1.512	1.008	1.550	1.554	1.633	1.590	1.608	1.507	1.527	1.534	1.636	1.538	1.612	1.537	1.525	1.534	1.546	1.005	1.280	1.536
4 K _{Ic}	z	DESIGN	CT	CT	CT	cr	CI	ÇŢ	Ç	CI	CT	CT	СТ	СТ	CT	CT	CT	CT	CT	CT	cr	CT	CT	CT
2124	SPECIMEN	THICK (in.) B	0.751	1.499	1.500	1.002	1.499	0.999	1.495	1.500	1.499	1.498	1.499	1.500	1.300	1.499	1.500	1.140	1.493	1.500	1.498	0.998	1.249	1.494
ALUMINUM	SC	WIDTH (fn.) W	1.498	3.000	3.024	2.000	2.999	2.989	3.002	3.000	2.978	3.014	3.001	3.008	2.976	3.016	3.024	3.000	2.990	3.008	3.004	2.010	2.510	2.999
ALU		YIELD STR (Kel)	64.1	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.3	64.3	64.3	64.4	64.4	64.4	64.4	64.4	64.5	64.5	64.5	64.5	64.5	64.5
		BPEC	1										1	Cont'd										
		TEST TEMP (°F)											R.T.	Cont'd										
	oucr	THICK (in.)	2.35	3.00	4.25	2.00	3.50	2.25	3.00	1.67	3.62	3.54	2.35	4.25	3.00	2.00	4.50	1.12	1.60	4.25	2.50	2.50	2.50	2.50
	PRODUCT	FORM											Plate	Cont'd										
		CONDITION											1851	Cont'd										

11 of 61

						- 11									
	PRODUCT					32	SPECIMEN	Z	CRACK			K _{Io}		-	
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC OR	YIELD STR (Kel)	WIDTH (In.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.5 * (K _{te} /TYS) ³ (In.)	K. (Ketvin.)	K. MBAN	BTAN DEV	DATE	REFER
		2.50			64.5	2.498	1.250	CT	1.274	0.48	28.50			1978	MPC01
		4.25			64.7	3.026	1.499	CT	1.543	0.60	31.80			1978	MPC01
		2.50			64.7	3.014	1.102	CT	1.567	0.40	26.50			1978	MPC01
		2.76			64.7	3.024	1.500	CT	1.542	0.70	34.80			1978	MPC01
		4.25			64.7	3.028	1.501	CT	1.514	0.62	32.50			1978	MPC01
		3.00			64.8	3.000	1.499	CT	1.658	0.40	26.00			1979	RA001
	1	2.00			64.8	3.002	1.496	CT	1.564	0.40	26.10			1980	RA001
		2.20			64.8	3.001	1.498	cr	1.554	0.62	29.70			1980	RA001
		2.50			64.9	2.010	1.000	CT	1.005	0.65	30.60			1978	MPC01
		2.50	-		64.9	2.508	1.250	CT	1.279	0.42	27.20			1978	MPC01
	Plate	2.50	R.T.	ĻŢ	64.9	2.486	1.250	CT	1.268	0.42	26.90	,		1978	MPC01
	Cont'd	3.25	Cont'd	Cont'd	64.9	3.016	1.497	CT	1.508	0.70	34.40	Cont'd	Cont'd	1978	MPC01
		1.81			64.9	2.982	1.493	CT	1.521	0.52	29.90			1978	MPC01
		2.76			64.9	2.997	1.498	CT	1.610	09'0	32.00			1980	RA001
	•	4.90			65.0	3.000	1.500	CT	1.591	0.49	28.90			1978	RA002
		2.00		-	65.0	3.017	1.499	CT	1.569	0.67	31.20			1978	MPC01
	•	0.62	••••		65.1	1.006	0.600	CI	0.503	0.46	28.40			1978	MPC01
		1.50			66.1	3.000	1.479	CT	1.632	0.62	29.90			1980	RA001
		2.00			65.1	3.000	1.496	CT	1.581	0.69	31.79			1980	RA001
		4.00		-	65.2	3.979	2.000	CT	2.069	0.50	29.40			1978	MPC01
		2.00			66.2	2.008	0.899	C.	1.044	0.44	27.60			1978	MPC01
		2.50			65.2	2.999	1.498	t d	1.666	0.48	28.70			1980	RA001

					ALU	ALUMINUM	[2124	74 K _{Io}							
	PRODUCT	oucr				SC.	SPECIMEN	Z	CRACK			K _{Io}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 * (K _{L/} IYS)* (in.)	K. (Kedvin.)	K. MEAN	BTAN DEV	DATE	REFER
	·	1.75			65.2	2.999	1.500	CT	1.567	0.61	32.30			1980	RA001
		1.67			65.2	3.000	1.500	CT	1.530	0.73	35.20			1972	84368
		3.00			65.2	3.008	1.400	CT	1.694	0.48	28.90			1978	MPC01
		1.67			65.2	3.000	1.500	CŢ	1.480	0.69	34.20			1972	84368
		3.00			65.2	2.001	0.997	CT	1.012	0.54	90.50			1978	RA002
		2.36			65.2	2.016	1.001	СŢ	0.988	0.40	26.70			1978	MPC01
		4.00			65.2	4.039	1.997	CT	2.060	0.48	29.10			1978	MPC01
		2.50			65.3	3.000	1.499	CT	1.522	0.45	28.00			1980	RA001
		2.00			65.3	1.994	0.999	CT	1.017	0.42	27.30			1978	MPC01
		2.50			65.4	2.000	1.000	CT	1.010	0.44	27.30			1972	84368
T861	Plate	2.04	R.T.	7	65.4	1.500	0.750	cr	0.740	0.27	21.30			1972	84368
Cont'd	Cont'd	2.50	Cont'd	Cont'd	65.4	2.000	1.000	СŢ	1.020	0.43	27.10	Cont'd	Cont'd	1972	84368
		1.81			65.4	2.012	0.998	CT	1.046	0.44	27.80			1978	MPC01
		2.00			65.4	3.003	1.501	CT	1.568	0.54	30.40			1978	RA002
		3.50			65.4	3.000	1.500	СT	1.540	0.44	27.90			1972	84368
		2.04			65.4	1.500	0.750	cr	0.750	0.26	21.10			1972	84368
		3.00			65.4	2.975	1.246	CT	1.617	0.56	30.80			1978	MPC01
		2.00			65.4	3.030	1.500	CT	1.515	0.48	29.00			1978	MPC01
		2.50			65.4	2.990	1.498	СT	1.626	0.55	30.90			1978	MPC01
		3.00			65.5	1.997	0.998	CT	1.014	0.59	32.00			1979	RA001
		2.50			65.6	1.998	0.998	cr	0.979	0.50	29.50			1978	MPC01
		4.00			65.5	3.000	1.500	cr	1.580	0.31	23.00			1972	84368
		:													

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		REFER	84368	84368	84368	RA001	MPC01	MPC01	MPC01	MPC01	RA002	RA001	MPC01	NC003	84306	MPC01	RA002	NC003	RA001	84368	84368	84368	MPC01	MPC01
		DATE	1972	1972	1972	1978	1978	1978	1978	1978	1978	1980	1978	1982	1972	8261	8/61	1982	0861	1972	2/61	1972	1978	1978
		STAN												Cont'd										
	K _{Io}	K, MEAN												Cont'd										
		K. (Kolvin.)	22.50	36.70	36.40	29.20	28.10	27.00	24.70	33.10	32.50	29.40	26.30	30.00	32.40	28.20	30.10	30.00	31.00	33.70	34.90	30.30	29.80	28.90
		2.5 * (K, TYS)* (in.)	0:30	0.78	0.77	0.49	0.44	0.42	0.34	0.62	09:0	0.49	0.38	0.62	0.60	0.44	0.51	0.52	0.54	99.0	0.69	0.62	0.60	0.46
	CRACK	LENGTH (in.) A	1.560	2.100	2.100	1.574	1.509	1.551	1.479	1.605	1.583	1.534	1.068	1	1.356	1.083	1.520		1.564	2.150	2.160	1.550	1.509	1.022
4 K _{Ic}	z	DESIGN	CJ.	CŢ	CŢ	CT	CT	CT	CT	cr	CT	CT	CT	СТ	CT	CT	CT	CT	CT	C.I.	CI	CT	C.	Ę
2124	SPECIMEN	THICK (in.) B	1.500	2.000	2.000	1.478	1.500	1.499	1.136	1.400	1.501	1.498	0.999	1.500	0.755	0.998	1.187	1.500	1.496	2.000	2.000	1.500	1.478	1.000
ALUMINUM	SC.	WIDTH (in.) W	3.000	4.000	4.000	3.001	3.018	2.983	3.018	3.028	3.003	3.003	2.016	3.000	2.400	2.006	3.003	3.000	3.001	4.000	4.000	3.000	3.018	2.004
ALU		YIRLD STR (Kal)	66.5	65.6	65.6	65.6	65.7	65.7	65.7	65.8	629	6.39	999	66.0	66.0	66.0	66.0	66.0	66.1	66.2	66.2	66.2	66.2	66.2
		SPEC											5	Cont'd						Î				
		TEST TEMP (°F)											R.T.	Cont'd										
	oucr	THICK (fb.)	4.00	2.50	2.50	3.00	6.50	2.50	1.12	3.00	1.75	2.40	2.25	1.50	3.00	1.25	2.50	1.50	1.50	2.50	2.50	2.00	1.50	1.12
	PRODUCT	FORM											Plate	Cont'd										
		CONDITION												Cont'd										

		i					1	 1		- i	T	T	T							Ī	Ī	Ī	Ī	
		REFER	84368	MPC01	MPC01	RA002	MPC01	MPC01	RA001	UD005	MPC01	84306	84306	UD005	RA002	84306	MPC01	UD005	RA001	MPC01	RA002	MPC01	MPC01	MPC01
		DATE	1972	1978	1978	1978	1978	1978	1979	1978	1978	1972	1972	1978	1978	1972	1978	1978	1878	1978	1978	1978	1978	1978
		BTAN	1											Cont'd							*****			
	K	K. MEAN				-								Cont'd									·	
		K. (Keivin.)	30.40	29.00	26.30	28.20	25.10	29.30	25.50	30.90	25.00	21.40	24.60	30.10	30.40	24.70	26.10	30.40	29.79	32.20	30.00	29.80	27.80	28.90
		2.5 • (K_JTYS)* (in.)	0.63	0.46	0.38	0.45	0.34	0.48	0.36	0.64	0.34	0.26	0.34	0.51	0.52	96'0	0.38	0.62	0.50	0.67	0.50	0.48	0.42	0.46
	CRACK		1.560	1.528	0.750	1.539	1.067	1.539	1.021	:	1.461	1.014	1.018		1.663	1.255	1.057	:	1.641	1.581	1.561	1.599	1.542	0.752
4 K _I °	7	DESIGN	cr	CT	CT	CT	CT	CT	CT	CT	CT	CT	cT	cr	CT	CT	CT	CT	CT	ст	cr	CT	CT	CI.
2124	SPECIMEN	THICK (in.) B	1.500	1.448	0.750	1.497	0.998	1.493	0.999	2.000	1.153	0.752	0.748	2.000	1.503	0.753	0.999	2.000	1.499	1.499	1.503	1.185	1.201	0.750
ALUMINUM	5 2	WIDTH (in.)	3.000	2.996	1.500	2.999	2.013	3.018	1.998	4.000	2.982	2.000	2.000	4,000	3.003	2.000	1.994	4.000	2.998	2.983	3.002	3.017	3.024	1.504
ALU		YIELD STR (Kal)	66.2	66.2	66.2	66.2	66.3	66.3	66.3	66.4	66.4	66.4	66.4	66.4	66.4	66.4	66.4	66.4	66.5	66.6	9.99	66.7	66.7	66.7
		SPEC											LT	Cont'd										
		TEST TEMP (°F)											R.T.	Cont'd				,						
	ucr	THICK (fn.)	2.00	1.50	0.87	2.50	1.37	27.25	2.50	2.00	1.12	2.00	2.00	2.00	1.76	2.00	2.50	2.00	1.50	2.00	2.75	1.12	2.50	0.87
	PRODUCT	FORM											Plate	Cont'd										
		CONDITION											1387	Cont'd										

	K _{Ie}	DATE REFER DATE REFER DEV DEV	1980 RA001	1978 RA002	1978 MPC01	1978 MPC01	1972 84368	1978 MPC01	1978 MPC01	1978 MPC01	1978 MPC01	28.60 84368	1978 RA002	27.80 Cont'd Cont'd 1978 MPC01	26,00 84368	29.50 RA001	31.70 MPC01	33.50 MPC01	26.50 1972 84368	28.79 MA002	29.00 MA002	28.79 RA001	26.50 RA001	28.60 1978 MPC01
		2.5 • (K _{a,} /TYS)* (in.) K _{a,} (Kai'lin.)	0.42 27.50	0.45 28.60	0.62 83.50	0.48 29.80	0.45 28.30	0.67 35.10	0.44 28.70	0.40 27.30	0.40 27.20	0.45	0.48 29.60	0.42	0.37	0.48	0.66 8	09:0	0.39	0.45	0.46	0.45	0.38	0.44
	CRACK	LENGTH (in.) A	1.487	1.575	1.628	1,598	1.580	1.616	1.489	1.515	1.506	1.570	1.536	1.626	1.560	1.587	1.521	1.529	1.560	1.282	1.298	1.525	1.675	1.545
14 K _{Io}	N.	DESIGN	CI	CT	CT	CT	CT.	CT	СŢ	CT	CT	CT	CT	CT	CT	ст	CT	CT	CT	СT	CT	cr	СŢ	Ę.
M 2124	SPECIMEN	THICK (in.)	1.497	1.501	1.495	1.499	1.500	1.435	1.496	1.441	1.481	1.500	1.499	1.499	1.500	1.496	1.601	1.601	1.500	1.252	1.253	1.494	1.501	1.498
ALUMINUM		WIDTH (in.)	3.000	3.001	3.015	3.015	3.000	2.993	2.978	3.030	3.012	3.000	2.999	3.011	3.000	3.003	2.982	2.998	3:000	2.509	2.512	2.997	3.000	3.029
ALT		YIELD STR (Kel)	66.7	66.7	6.69	6.99	67.0	67.0	67.0	67.0	67.0	67.0	67.1	67.1	67.2	67.2	67.2	67.2	67.2	67.2	67.2	67.6	67.7	67.7
		SPEC											7											
		TEST TEMP (°F)			···			······································			-		R.T.	Cont'd						—т	-			
	PRODUCT	THICK (in.)	1.65	1.62	3.00	2.25	1.76	3.00	1.55	1.50	1.50	1.76	1.73	1.76	1.57	1.75	2.03	2.03	1.67	1.60	1.50	1.50	1.66	2.00
	PRO	PORM											Plate	Cont'd			•							
		CONDITION											1851	Cont'd										

17 of 61

PRODUCT TRAIL STRICTION TRAIL STRICTION TRAIL STRICTION CALACATION CALACATION <th< th=""><th></th><th></th><th></th><th></th><th></th><th>ALU</th><th>ALUMINUM</th><th>1 2124</th><th>24 K_{Io}</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th<>						ALU	ALUMINUM	1 2124	24 K _{Io}							
Thick Thic		PROI	oucr				oz.	PECIME	Z.	CRACK			K			
1150 1150 <th< td=""><td>CONDITION</td><td>FORM</td><td>THICK (in.)</td><td>TEST TEMP (°F)</td><td>SPEC</td><td>STR (Kei)</td><td>WIDTH (in.) W</td><td>THICK (in.) B</td><td>DESIGN</td><td>LENGTH (in.) A</td><td>2.6 * (K_{k./}TYS)* (in.)</td><td>K. (Kelvlin.)</td><td>K. MEAN</td><td>ļ</td><td>DATE</td><td>REFER</td></th<>	CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	STR (Kei)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 * (K _{k./} TYS)* (in.)	K. (Kelvlin.)	K. MEAN	ļ	DATE	REFER
1150 126			1.56			67.8	1.998	0.999	CT	1.019	0.40	27.70			1978	MPC01
1.75 1.75 1.75 1.85 1.85 1.463 1.75 1.462 1.850 0.55 0.580 0.55 0.580 1.978 1.97			1.50			67.9	1.985	0.999	CT	1.032	0.42	28.00			1978	MPC01
Phase County (1.25) 1.27 68.4 2.89 1.37 1.67 1.68 1.37 0.89 7.7 1.68 0.38 2.89 2.89 1.87 <td></td> <td></td> <td>1.76</td> <td></td> <td></td> <td>68.0</td> <td>2.998</td> <td>1.498</td> <td>CT</td> <td>1.589</td> <td>0.55</td> <td>32.40</td> <td></td> <td></td> <td>1978</td> <td>MPC01</td>			1.76			68.0	2.998	1.498	CT	1.589	0.55	32.40			1978	MPC01
Plate Cont.4 Lags RT. L.Y G84 2.017 6.89 CT 1.089 0.38 28.90 P. 178 1.78 P. 178 1.78 P. 178			1.37			68.2	2.984	1.376	СŢ	1.462	0.38	26.90			1978	MPC01
Plate L.73 R.T. L.7 684 South L.S. 1,803 South L.S. 1,61 South L.S. 1,62 South L.S. 0,40 South L.S. 0,40 South L.S. 0,40 South L.S. 1,69 South L.S. 1,69 South L.S. 1,69 South L.S. 0,40 South L.S. 0,40 South L.S. 1,69 South L.S.			1.25		1	68.4	2.017	0.999	CT	1.089	0.38	26.90			1978	MPC01
Contided 1.02 Contided	1351	Plate	1.73	R.T.		68.4	3.003	1.503	CT	1.611	0.48	30.20			1978	RA002
1.50 69.1 3.002 1.450 CT 1.528 0.36 28.70 1.990 1.75 1.990<	Cont'd	Cont'd	1.62	Cont'd	Cont'd	68.8	3.001	1.451	CT	1.522	0.40	27.79	Cont'd		1980	RA001
1.75 1.75 69.7 2.080 1.500 CT 1.659 0.44 29.20 1.978 1978 1978 1978 1978 1978 1978 1978 1972			1,50			69.1	3.002	1.492	CT	1.528	0.36	26.70			1980	RA001
2.52 68.7 2.000 1.000 CT 0.960 0.34 25.60 1972 1972 2.52 68.7 2.000 1.000 CT 0.960 0.38 26.00 1972 1972 5.00 68.7 2.000 1.000 CT 0.940 0.38 26.20 1972 1972 6.00 6.00 3.01 1.572 CT 1.477 26.40 1972 1978<			1.75			69.6	2.998	1.500	CT	1.559	0.44	29.20			1978	MPC01
2.62 6.97 2.00 1.00 CT 0.860 0.35 28.00 1.972 3.00 3.00 1.00 CT 0.940 0.35 28.00 1.972 5.00 5.00 3.014 1.872 CT 1.477 29.40 1.978 6.00 6.00 3.014 1.872 CT 1.477 29.40 1.978 6.00 6.00 5.04 1.692 CT 1.610 0.44 23.10 1.978 6.00 8.00 1.492 CT 1.510 0.44 23.10 1.978 6.00 R.T. 6.00 CT 1.510 0.50 24.80 1.978 6.00 R.D. 1.492 CT 1.579 0.50 24.80 1.978 6.00 6.00 3.00 1.499 CT 1.594 0.50 22.90 1.978 6.00 6.00 3.00 1.890			2.62			69.7	2.000	1.000	CT	0:960	0.34	25.50			1972	84368
5.00 6.01 2.00 1.00 CT 1.477 28.40 1.872 CT 1.533 0.56 28.10 1.873 1.873 0.56 28.10 1.873 1.872 0.544 28.10 1.873 0.544 28.10 1.873 1.873 0.56 28.80 1.873 1.873 0.571 28.80 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.872 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.873 1.873 <t< td=""><td></td><td></td><td>2.52</td><td></td><td></td><td>69.7</td><td>2.000</td><td>1.000</td><td>CT</td><td>0.960</td><td>0.35</td><td>26.00</td><td></td><td></td><td>1972</td><td>84368</td></t<>			2.52			69.7	2.000	1.000	CT	0.960	0.35	26.00			1972	84368
5.00 5.01 1.872 CT 1.477 26.40 1.872 THAT 26.40 1.872 CT 1.633 0.66 25.10 1.979 1.972 1.979 1.979 1.979 1.979 1.979 1.979 1.979 1.979 1.979 1.979 1.979 1.979 1.979 1.979 1.979 1.979 1.979 1.979			2.52			69.7	2.000	1.000	CT	0.940	. 0.33	25.20			1972	84368
6.00 R.T. 63.9 3.004 1.602 CT 1.639 0.66 26.10 1979 1979 6.00 6.00 R.T. 6.25 2.973 1.497 CT 1.516 0.64 23.10 1978 1978 Plate 6.50 E.25 2.973 1.497 CT 1.516 0.50 24.80 1978 1978 6.00 6.00 R.T. F4.6 2.976 1.499 CT 1.579 0.57 28.60 25.1 1978 6.00 6.00 A.S. 54.9 3.008 1.499 CT 1.594 0.55 28.00 1978 6.00 A.S. 54.9 3.012 1.499 CT 1.594 0.657 28.90 1978 6.00 A.S. 6.00 A.S. 2.965 1.499 CT 1.562 0.67 28.90 1978 6.00 A.S. 6.00 A.S. 2.965 1.499 CT 1.56			3.00			:	3.014	1.372	CT	1.477	1	26.40			1978	MPC01
E50 R.T. E4.2 2.973 1.499 CT 1.519 0.44 23.10 1978 <t< td=""><td></td><td></td><td>2.00</td><td></td><td>L</td><td>53.0</td><td>3.004</td><td>1.502</td><td>CT</td><td>1.533</td><td>0.56</td><td>25.10</td><td></td><td></td><td>1979</td><td>GD011</td></t<>			2.00		L	53.0	3.004	1.502	CT	1.533	0.56	25.10			1979	GD011
Flate 6.50 R.T. T.L. 64.4 2.973 1.497 CT 1.516 0.50 24.80 24.80 1978 Flate 6.00 R.T. 7.4 2.998 1.499 CT 1.579 0.57 28.60 25.1 1978 6.00 6.00 6.00 6.00 6.00 CT 1.594 0.55 28.60 1978 6.00 6.00 6.00 6.00 6.00 CT 1.594 0.65 22.90 1978 6.00 6.00 6.00 6.00 6.00 CT 1.692 0.42 22.90 1978 6.00 6.00 6.00 6.00 6.00 0.42 22.90 1978 6.00 6.00 6.00 6.00 0.48 20.67 28.80 1978			9009			63.9	3.020	1.499	cT	1.510	0.44	23.10			1978	MPC01
Plate 6.00 R.T. T.L. 64.6 2.998 1.498 CT 1.659 0.67 28.60 25.1 2.3 1978 6.00 6.00 6.00 6.00 6.00 6.00 7. 1.699 CT 1.694 0.655 28.00 25.1 2.3 1978 6.00 6.00 6.00 6.00 6.00 6.00 7. 1.694 0.42 22.90 7. 1978 6.00 6.00 6.00 6.00 6.00 6.00 0.48 0.48 0.67 28.80 1978			5.50			64.2	2.973	1.497	СŢ	1.516	0.50	24.80			1978	MPC01
6.00 25.1 54.6 2.979 1.499 CT 1.679 0.67 26.60 25.1 2.3 1978 6.00 6.00 6.00 6.49 3.012 1.499 CT 1.636 0.42 22.90 1978 6.00 6.00 6.00 6.49 2.986 1.499 CT 1.652 0.67 28.80 1978 6.00 6.00 6.00 6.00 0.48 24.10 1972	785	Date	6.25	£	F	54.4	2.998	1.498	CT	1.559	0.50	24.80			1978	MPC01
64.9 3.008 1.499 CT 1.694 0.656 28.00 1978 64.9 3.012 1.499 CT 1.636 0.42 22.90 1978 64.9 2.985 1.499 CT 1.652 0.67 28.80 1978 65.0 3.000 1.500 CT 1.690 0.48 24.10 1872			9.00			54.6	2.979	1.499	CT	1.579	0.57	26.60	25.1	2.3	1978	MPC01
54.9 3.012 1.499 CT 1.536 0.42 22.90 1978 54.9 2.986 1.499 CT 1.552 0.67 28.80 1978 56.0 3.000 1.500 CT 1.580 0.48 24.10 1972			90.9			64.9	3.008	1.499	CT	1.694	0.55	26.00			1978	MPC01
64.9 2.885 1.489 CT 1.552 0.67 28.80 1878 65.0 3.000 1.500 CT 1.580 0.48 24.10 1872			5.25			64.9	3.012	1.499	CT	1.536	0.42	22.90			1978	MPC01
55.0 3.000 1.500 CT 1.580 0.48 24.10 1972			9.00			64.9	2.985	1.499	CT	1.662	0.67	28.80			1978	MPC01
			9.00			66.0	3.000	1.500	CT	1.580	0.48	24.10			1972	84368

											·			,										
		REFER	84368	MPC01	RA001	RA001	MPC01	MPC01	MPC01	MPC01	MPC01	RA001	MPC01	MPC01	MPC01	RA002	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	RA001
	-	DATE	1972	1978	1980	0861	1978	1978	1978	1978	1978	1980	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1979
		STAN												Cont'd										
	K _{Io}	K. MEAN												Cont'd										
		K. (Kelvin.)	23.70	29.90	25.00	27.70	27.00	26.00	25.10	27.60	22.30	27.20	23.90	24.10	27.80	30.90	27.20	28.30	30.50	28.50	24.40	22.40	25.30	26.29
		2.6 * (K _{L,} TYS)* (in.)	0.46	0.70	0.50	09:0	99'0	0.50	0.48	0.67	0.38	99'0	0.42	0.44	0.57	0.73	0.55	09:0	0.70	0.60	0.44	0.36	0.46	0.51
	CRACK	LENGTH (in.) A	1.560	1.569	1.582	1.010	1.564	1.622	1.544	1.505	1.637	1.000	1.604	1.505	1.613	1.666	1.544	1.528	1.583	1.650	1.667	1.564	1.043	1.685
4 K _{Ie}	z	DESIGN	cr	cr	CT	cr	СТ	CT	cr	CT	CT	CT	ст	CT	CT	CT	CT	r.	Ę.	ភ	Сī	CT	CT	CI
2124	SPECIMEN	THICK (fn.) B	1.500	1.498	1.500	0.995	1.499	1.499	1.500	1.498	1.498	0.998	1.500	1.498	1.494	1.498	1.499	1.497	1.500	1.500	1.500	1.502	0.998	1.501
ALUMINUM	SC.	WIDTH (in.) W	3.000	3.017	2.999	2.001	3.008	3.004	3.028	3.010	3.014	2.001	3.026	3.010	3.026	3.000	3.028	2.996	2.987	2.981	2.994	3.008	2.006	2.998
ALU		YIELD STR (Kei)	65.0	9:99	62.9	56.4	66.5	56.7	56.7	66.8	67.0	67.0	67.0	67.0	57.1	57.1	57.1	67.2	67.3	67.4	67.7	67.7	67.8	57.8
		SPEC											T·L	Cont'd										
		TEST TEMP (°F)						-					R.T.	Cont'd										
	PRODUCT	THICK (in.)	6.00	6.50	6.50	6.75	6.50	9.00	6,60	6.50	9.00	9.00	2.00	2.00	9.00	4.90	5.12	9.00	5.12	4.62	6.50	6.50	6.00	6.00
	PROI	FORM											Plate	Cont'd										
		CONDITION											1851	Cont'd										

19 of 61

					ALU	ALUMINUM	1 2124	24 K _{Io}							
	PRODUCT	vcr	-			SZ	SPECIMEN	N.	CRACK			K _I			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YTELD STR (Kel)	WiOTH (fn.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 • (K _{a./} TYB)* (in.)	K. (Kelvin.)	K. MEAN	STAN	DATE	REFER
		4.62		!	67.9	3.020	1.499	CT	1.510	0.42	24.20			1978	MPC01
		9.00			67.9	1.998	0.997	СŢ	1.025	0.47	25.29			1978	RA001
		6.50		<u>-</u>	68.0	2.986	1.500	CT	1.463	0.48	26.00			1978	MPC01
		4.50			68.0	2.997	1.497	CT	1.548	0.47	25.40			1979	RA001
		5.50			58.1	3.006	1.601	CT	1.633	0.38	22.80			1978	MPC01
		5.50		A	58.2	2.984	1.498	Cr	1.492	0.62	27.00			1978	MPC01
		4.25			58.4	3.000	1.499	CT	1.595	0.48	25.60			1980	RA001
		6.00			58.4	3.001	1.498	CT	1.612	0.44	24.60			1978	RA001
		6.00		•	58.4	2.996	1.499	CT	1.633	0.40	23.40	,		1979	RA001
		4.00			58.5	2.999	1.498	CT	1.560	0.43	24.29			1980	RA001
T851	Plate	2.00	R.T.	1:1	58.5	3.020	1.498	CT	1.540	0.40	23.50			1978	MPC01
Cont'd	Cont'd	4.50	Cont'd	Cont'd	58.5	3.000	1.500	СТ	1.570	0.51	26.50	Cont'd	Cont'd	1972	84368
		6.00			58.6	2.972	1.499	CT	1.605	0.44	24.80			1978	MPC01
		6.50			58.6	2.996	1.501	C.	1.528	0.44	25.10			1978	MPC01
		6.25			58.6	3.018	1.499	Ę.	1.509	0.62	27.20			1978	MPC01
		4.00			58.7	1.998	0.998	CT	1.005	0.36	22.50	 1		1979	RA001
		6.50			58.7	2.982	1.500	CL	1.521	0.44	25.20			1978	MPC01
		6.50			68.8	3.031	1.500	Ç	1.546	0.36	22.70			1978	MPC01
		6.50			68.8	3.008	1.500	ភ	1.534	0.30	21.00			1978	MPC01
		4.90			68.9	3.000	1.499	CT	1.623	0.40	23.79		_	1978	RA002
		4.55			68.9	3.001	1.500	CT	1.563	0.57	28.20			1980	RA001
		4.00			6.83	3.006	1.492	CT	1.633	0.48	26.40			1978	MPC01

Production Pro						ALU	ALUMINUM	1 2124	4 K _{lo}							
FORM		PRO	DUCT				oz.	PECIME	z	CRACK			K _{Io}			
6.00 A.60 C.00 C.17 1.89 0.28 0.28 0.49 C.17 1.89 0.28 20.00 1879 <t< td=""><td>CONDITION</td><td>FORM</td><td>THICK (in.)</td><td>TEST TEMP (°F)</td><td>SPEC</td><td>YIRLD STR (Kal)</td><td>WIDTH (in.) W</td><td>THICK (in.)</td><td>DESIGN</td><td>LENGTH (in.) A</td><td>2.5 • (K_w,TYS)* (in.)</td><td>K. (Kelvin.)</td><td>K. MBAN</td><td>STAN</td><td>DATE</td><td>REFER</td></t<>	CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIRLD STR (Kal)	WIDTH (in.) W	THICK (in.)	DESIGN	LENGTH (in.) A	2.5 • (K _w ,TYS)* (in.)	K. (Kelvin.)	K. MBAN	STAN	DATE	REFER
EACH CROW CROW <th< td=""><td></td><td></td><td>4.00</td><td></td><td></td><td>689</td><td>2.998</td><td>1.496</td><td>cT</td><td>1.589</td><td>0.38</td><td>23.00</td><td></td><td></td><td>1978</td><td>MPC01</td></th<>			4.00			689	2.998	1.496	cT	1.589	0.38	23.00			1978	MPC01
4.00 A. Separation 1.60 CT 1.66 O.44 28.50 1877 1878 4.00 4.00 3.01 1.61 CT 1.66 0.44 25.50 1878 1878 4.00 4.00 58.1 3.00 1.48 CT 1.69 CA 25.90 1878 1878 4.00 4.00 58.1 3.00 1.48 CT 1.69 CA 25.90 1878 1878 4.00 4.50 66.0 1.48 CT 1.69			6.00			69.0	2.987	1.500	CT	1.663	0.62	29.50			1978	MPC01
4.00 4.00 4.00 4.00 1.60 1.60 1.60 1.60 1.60 1.60 0.40 2.50 1.60 1.60 1.60 0.40 2.50 1.60 1.60 1.60 0.40 0.60 2.50 1.60 1.60 1.60 0.40 0.60 2.50 1.60 1.60 0.7 1.60 0.40 2.50 1.60 1.60 0.7 1.60 0.40 0.50 2.50 1.60 0.7 1.60 0.40 0.50 0.40 1.60 1.60 1.60 0.40 0.50 0.40 1.60 1.60 1.60 0.7 1.63 0.40 0.50 1.60 1.60 1.60 0.7 1.63 0.40 0.20 1.60 1.60 1.60 0.7 1.63 0.40 0.20 0.20 1.60 1.60 1.60 0.7 1.60 0.40 0.20 0.20 1.60 1.60 1.60 0.40 0.20 0.20 1.60 1.60 1.60 </td <td></td> <td></td> <td>6.50</td> <td></td> <td><u>+</u></td> <td>69.0</td> <td>2.977</td> <td>1.601</td> <td>CT</td> <td>1.548</td> <td>0.48</td> <td>26.50</td> <td></td> <td></td> <td>1978</td> <td>MPC01</td>			6.50		<u>+</u>	69.0	2.977	1.601	CT	1.548	0.48	26.50			1978	MPC01
4.50 4.50 4.63 CT 1500 0.44 25.30 1578 1578 1578 1578 1578 1580 0.44 25.30 1579 1580 1579 1580 1579 1580 1579 1580 1579 1580 1579 1580 1579 1580 1579 1580 1570 1587 0.47 25.79 1579 <t< td=""><td></td><td></td><td>4.00</td><td></td><td></td><td>69.0</td><td>3.012</td><td>1.501</td><td>CT</td><td>1.566</td><td>0.42</td><td>24.50</td><td></td><td></td><td>1978</td><td>MPC01</td></t<>			4.00			69.0	3.012	1.501	CT	1.566	0.42	24.50			1978	MPC01
4.00 4.00 6.91 1.09 CT 1.69 CT<			4.90		•	69.1	3.006	1.493	CT	1.503	0.44	25.30			1978	MPC01
450 450 450 1409 CT 1639 CT 1639 O.47 28.79 1878<			4.00		1	59.1	3.003	1.498	CT	1.604	99'0	28.10			1980	RA001
6.50 R.T. 6.50 R.T. 6.50 CT 1.687 0.40 22.70 1.788 1.789 <td></td> <td></td> <td>4.90</td> <td></td> <td></td> <td>69.1</td> <td>3.000</td> <td>1.499</td> <td>CT</td> <td>1.613</td> <td>0.47</td> <td>25.79</td> <td></td> <td></td> <td>1978</td> <td>RA002</td>			4.90			69.1	3.000	1.499	CT	1.613	0.47	25.79			1978	RA002
Fig. 6.50 R.T. Tr. Contidents 65.0 C.T. Lists 0.40 23.70 C.A.T. Contidents 1.500 C.T. Lists 0.36 22.80 1.678 1.678 C.T. Contidents 1.631 0.36 22.80 1.678 1.678 0.36 22.80 1.678 1.678 0.36 22.80 1.678 1.678 0.39 22.80 1.678 1.678 0.39 22.80 1.678 1.678 0.39 22.80 1.678 1.678 0.39 22.80 1.678 1.678 0.39 22.80 1.678 1.678 0.34 22.40 1.678 1.678 0.34 22.40 1.678 1.679 0.34 22.40 1.678 1.679 0.34 22.40 1.678 1.671 0.480 22.40 1.678 1.671 0.480 22.80 1.678 1.671 0.480 22.80 1.678 1.671 1.671 1.671 1.671 1.671 1.671 1.671 1.671 1.671 1.672 1.672 2.160 2.279			4.50	<u> </u>		69.1	2.994	1.498	CT	1.587	99.0	28.20			1978	MPC01
Plate Contided Libbot CEAD R.T. P.L. Libbot CFAD Contided Libbot CFAD Contided Libbot CFAD Libbot </td <td></td> <td></td> <td>6.50</td> <td></td> <td></td> <td>69.1</td> <td>3.006</td> <td>1.500</td> <td>CT</td> <td>1.533</td> <td>0.40</td> <td>23.70</td> <td></td> <td></td> <td>1978</td> <td>MPC01</td>			6.50			69.1	3.006	1.500	CT	1.533	0.40	23.70			1978	MPC01
Contd 4.50 R.T. CPL 692 2.987 1.497 CF 1.653 0.39 21.00 Contd 1978 <			6.50			69.2	3.028	1.500	cr	1.544	0.36	22.80			1978	MPC01
Cont'd 4.60 Cont'd 692 2.897 1.498 CT 1.659 0.38 23.20 Cont'd 1978 4.50 4.50 59.2 3.007 1.498 CT 1.699 0.65 28.20 Cont'd 1978 1978 1978 6.00 6.00 6.00 6.00 CT 1.677 0.60 29.60 1978 1978 1978 6.00 6.00 6.00 1.600 CT 1.610 0.34 21.80 1978 1978 6.50 6.50 6.50 3.000 1.600 CT 1.610 0.36 22.30 1978 6.50 6.50 6.50 3.001 1.601 CT 1.639 0.36 22.79 1978 6.50 6.50 6.50 3.016 1.601 CT 1.638 0.30 22.79 1978 6.50 6.50 3.016 1.602 CT 1.634 0.32 21.90 1978	T851	Plate	5.50	R.T.	T.L	59.2	2.983	1.497	cr	1.661	0:30	21.00			1978	MPC01
69.2 3.017 1.498 CT 1.699 0.56 28.20 1978 69.2 3.004 1.499 CT 1.677 0.60 29.60 1978 69.3 2.976 1.500 CT 1.610 0.34 21.80 1972 69.3 3.000 1.600 CT 1.640 0.36 22.30 1972 69.4 3.001 1.601 CT 1.639 0.36 22.79 1978 69.6 3.016 1.602 CT 1.639 0.30 20.90 1978 69.6 3.016 1.602 CT 1.639 0.32 21.60 1978 69.6 3.008 1.602 CT 1.634 0.32 21.60 1978 69.6 3.008 1.602 CT 1.634 0.32 21.80 1978 69.6 3.008 1.601 CT 1.649 0.37 21.80 1978 69.7 2.000 1.001 <td>Cont'd</td> <td>Cont'd</td> <td>4.50</td> <td>Cont'd</td> <td>Cont'd</td> <td>59.2</td> <td>2.987</td> <td>1.498</td> <td>cr</td> <td>1.563</td> <td>0.38</td> <td>23.20</td> <td>Cont'd</td> <td>Cont'd</td> <td>1978</td> <td>MPC01</td>	Cont'd	Cont'd	4.50	Cont'd	Cont'd	59.2	2.987	1.498	cr	1.563	0.38	23.20	Cont'd	Cont'd	1978	MPC01
69.2 3.004 1.499 CT 1.652 0.34 22.40 1978 69.3 2.876 1.500 CT 1.510 0.34 21.80 1978 69.3 3.000 1.500 CT 1.510 0.36 22.30 1972 69.4 3.001 1.501 CT 1.633 0.36 22.79 1978 69.6 3.016 1.609 CT 1.638 0.30 20.90 1978 69.6 3.016 1.600 CT 1.634 0.32 21.60 1978 69.6 3.016 1.602 CT 1.634 0.32 21.60 1978 69.6 3.016 1.602 CT 1.634 0.32 21.80 1978 69.6 3.006 1.001 CT 1.046 0.37 21.80 1978			4.50			59.2	3.017	1.498	CT	1.599	97.0	28.20			1978	MPC01
69.3 2.876 1.500 CT 1.677 0.60 29.60 1978 69.3 3.000 1.500 CT 1.510 0.34 21.80 1972 69.4 3.000 1.500 CT 1.640 0.36 22.39 1972 69.6 3.016 1.601 CT 1.638 0.36 22.79 1978 69.6 3.016 1.602 CT 1.638 0.30 20.90 1978 69.6 3.016 1.602 CT 1.634 0.32 21.60 1878 69.6 3.008 1.602 CT 1.634 0.32 21.90 1878 59.7 2.000 1.001 CT 1.046 0.37 23.20 1978			4.00			59.2	3.004	1.499	ст	1.562	0.94	22.40	,		1978	MPC01
69.3 3.000 1.500 CT 1.610 0.34 21.80 1972 69.4 3.000 1.500 CT 1.640 0.36 22.39 1972 69.4 3.016 1.501 CT 1.683 0.36 20.30 1978 69.6 3.016 1.600 CT 1.638 0.30 20.50 1978 69.6 3.008 1.602 CT 1.634 0.32 21.50 1978 69.7 2.000 1.001 CT 1.046 0.37 21.80 1978	Market State of the State of th		6.00			59.3	2.976	1.500	CT	1.577	09:0	29.60			1978	MPC01
69.3 3.000 1.500 CT 1.640 0.36 22.39 1972 69.4 3.016 1.601 CT 1.683 0.36 22.79 1978 69.6 3.016 1.499 CT 1.538 0.30 20.90 1978 69.6 3.016 1.500 CT 1.538 0.32 21.50 1878 69.6 3.008 1.502 CT 1.634 0.32 21.50 1978 59.7 2.000 1.001 CT 1.046 0.37 23.20 1978			6.50			69.3	3.000	1.500	CT	1.510	0.34	21.80			1972	84368
69.4 3.001 1.501 CT 1.683 0.36 22.79 1978 69.6 3.016 1.499 CT 1.638 0.30 20.90 1978 69.6 3.016 1.500 CT 1.638 0.32 21.50 1978 69.6 3.008 1.602 CT 1.634 0.32 21.90 1978 59.7 2.000 1.001 CT 1.046 0.37 23.20 1978			5.50			59.3	3.000	1.500	CT	1.540	0.35	22.30			1972	84368
69.6 3.016 1.499 CT 1.538 0.30 20.90 1978 69.6 3.016 1.500 CT 1.638 0.32 21.50 1978 69.6 3.008 1.602 CT 1.634 0.32 21.90 1978 59.7 2.000 1.001 CT 1.045 0.37 23.20 1978			4.60			59.4	3.001	1.501	CT	1.583	98.0	22.79			1978	RA002
69.6 3.016 1.500 CT 1.534 0.32 21.50 1978 69.6 3.008 1.502 CT 1.534 0.32 21.90 1978 59.7 2.000 1.001 CT 1.045 0.37 23.20 1978			6.50			69.6	3.016	1.499	СТ	1.538	0.30	20.90			1978	MPC01
69.6 3.008 1.602 CT 1.534 0.32 21.90 1978 59.7 2.000 1.001 CT 1.045 0.37 23.20 1978			5.50			59.6	3.016	1.500	CT	1.538	0.32	21.50			1978	MPC01
59.7 2.000 1.001 CT 1.045 0.37 23.20 1978			6.60			59.6	3.008	1.502	СŢ	1.534	0.32	21.90			1978	MPC01
			2.00			59.7	2,000	1.001	CT	1.045	0.37	23.20			1978	RA002

					ALU	ALUMINUM	I 2124	M K _{lo}							
	PROI	PRODUCT				82	SPECIMEN	N.	CRACK			K _{Io}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kal)	WIDTH (In.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.5 • (K _{4./} TYS)* (in.)	K. (Kelvlin.)	K. MEAN	STAN DEV	DATE	REFER
		5.50		•	69.8	3.018	1.500	J.	1.539	0.40	24.20			1978	MPC01
		5.00			69.8	3.026	1.500	CŢ	1.543	0.38	23.50			1978	MPC01
		6.50			8.69	2.996	1.500	ÇĪ	1.558	0.40	24.10			1978	MPC01
		4.00			6.69	2.999	1.499	CT	1.570	0.38	23.40			1980	RA001
		4.90			6.69	3.003	1.500	CT	1.672	0.42	24.60			1978	RA002
		6.00			59.9	3.012	1.499	CT	1.566	0.65	30.60			1978	MPC01
		4.00			60.0	2.000	1.000	CT	1.030	0.38	23.40			1972	84368
		4.50			60.0	3.000	1.500	CT	1.500	0.67	28.80			1978	MPC01
		4.50			60.0	3.000	1.496	CT	1.604	0.41	24.29			1978	RA002
		5.00			60.1	3.000	1.501	CT	1.530	0.38	23.80			1978	MPC01
T861	Plate	6.50	R.T.	T-L	60.1	2.994	1.501	СI	1.567	0.34	22.50			1978	MPC01
Cont'd	Cont'd	4.00	Cont'd	Cont'd	60.1	2.999	1.500	CT	1.493	0.54	28.10	Cont'd	Cont'd	1980	RA001
		6.50			60.1	2.992	1.500	CT	1.526	0.40	24.30			1978	MPC01
		6.50			60.1	3.002	1.500	CT.	1.530	0.30	21.50			1978	MPC01
		6.50			60.1	2.994	1.601	CT	1.527	0.32	22.10			1978	MPC01
		6.25			60.1	3.026	1.500	CT	1.513	0.44	25.30			1978	MPC01
		6.50			60.2	2.988	1.500	CT	1.524	0.36	22.90			1978	MPC01
		4.00			60.2	3.000	1.497	CT	1.636	0.41	24.40			1978	RA001
		4.25			60.3	1.981	0.997	CT	1.030	0.46	26.40			1978	MPC01
		4.00			60.3	3.020	1.498	Ç	1.540	09:0	27.20			1978	MPC01
		2.50			60.4	2.978	1.500	CT	1.519	0.38	23.60			1978	MPC01
		3.50			60.4	3.016	1.497	CT	1.478	0.46	26.50		_	1978	MPC01

					ALU	ALUMINUM	1 2124	4 K _{Io}								
	PRODUCT	UCT				σα	SPECIMEN	z	CRACK			K _{Ie}				
CONDITION	FORM	THICK (in.)	TEST TEMP (°F.)	SPEC	YIELD STR (Kei)	WIDTH (In.)	THICK (in.)	DESIGN	LENGTH (in.) A	2.5 * (K _{L,/} TYS)* (in.)	K. (Kelvin.)	K. MEAN	STAN DRV	DATE	REFER	
	1	6.50			60.4	3.000	1.500	CT	1.500	98'0	23.30			1978	MPC01	
	-	2.00			60.4	3.214	1.499	cT	1.639	0.36	23.40			1978	MPC01	
		4.00		اا	60.4	2.998	1.373	CT	1.588	0.51	27.40			1978	RA001	-
		1.81			9.09	3.002	1.498	cr	1.651	0.44	25.70			1978	MPC01	
		6.50	<u>, -, -, -, -, -, -, -, -, -, -, -, -, -,</u>	1	60.6	2.998	1.500	CT	1.529	0.28	21.20			1978	MPC01	
		6.25			9.09	3.018	1.500	CT	1.539	09:0	27.70			1978	MPC01	
	.	6.50			60.6	3.018	1.500	CT	1.539	0.32	22.20			1978	MPC01	_
		3.76			9.09	2.996	1.497	CT	1.528	0.48	27.00			1978	MPC01	
		9.50			9.09	3.014	1.500	CT	1.537	0.36	23.50			1978	MPC01	
	1	6.50		1	9.09	2.996	1.500	CT	1.528	0.34	23.00			1978	MPC01	
1861	Plate	4.50	R.T.	<u>1</u>	60.7	3.020	1.601	СŢ	1.510	0.46	26.70			1978	MPC01	
	Cont'd	4.31		Cont'd	8.09	2.000	1.000	CT	1.000	0.38	23.60	Cont'd	Cont'd	1972	84368	
		4.31			80.8	2.000	1.000	cr	0.990	0.39	23.90			1972	84368	
		6.00		1	6.09	2.988	1.500	СŢ	1.524	0.30	21.90			1978	MPC01	
	1	4.00	!	1	6.09	2.998	1.499	cr	1.608	0.43	25.29	-		1979	RA001	
		3.00		1	6.09	3.002	1.498	CT	1.567	0.67	29.29			1980	RA001	
	L	3.00			61.0	3.001	1.418	CT	1.565	0.54	28.50			1980	RA001	
		6.00		1	61.0	3.020	1.501	CT	1.631	0.46	26.60			1978	MPC01	-
		3.00			61.1	2.999	1.498	CT	1.546	0.46	26.29			1980	RA001	
		6.50		L	61.1	3.004	1.490	CT	1.632	0.32	22.00			1978	MPC01	
		4.00			61.1	3.000	1.498	CT	1.562	0.59	29.70			1978	RA001	
		6.25			61.1	2.985	1.500	CT	1.662	0.42	25.50			1978	MPC01	

22 of 61

MPC01 MPC01 MPC01 MPC01 MPC01 MPC01 MPC01 RA001 MPC01 MPC01 MPC01 RA001 RA001 RA002 MPC01 MPC01 MPC01 MPC01 RA001 84368 84368 RA001 1978 1978 1978 1978 DATE 1972 1978 1978 1978 1979 1978 1978 1980 1978 1978 1978 1978 1978 1980 1978 1978 1972 Cont'd STAN DEV Cont'd K, MEAN \mathbf{K}_{Ie} K. (Kelvlin.) 28.40 25.40 29.00 23.70 28.30 24.30 27.70 27.70 28.60 25.50 31.80 22.50 22.70 24.70 25.79 22.30 23.30 22.60 22.30 21.30 27.90 0.40 0.32 0.28 0.60 0.50 99. 0.62 0.42 0.55 0.37 0.42 0.50 0.62 0.32 0.38 0.44 0.32 0.36 0.34 0.67 0.32 0.34 , 20 CRACK LENGTH (in.) 1.515 1.510 1.515 1.613 1.602 1.547 1.632 1.533 1.666 1.625 1.594 1.540 1.663 1.625 1.535 1.570 1.520 1.544 1.533 1.507 1.657 1.624 $\mathbf{K}_{\mathrm{I}^{\mathrm{c}}}$ DESIGN Ç CT 5 СŢ ţ 5 ÇŢ Ç Ç Ç Ç Ç Ç ರ Ç Ç IJ ţ $\mathbf{c}\mathbf{I}$ Ç CI ວ 2124 SPECIMEN THICK (In.) 1.438 1.499 1.502 1.499 1.497 1.500 1.500 1.497 1.500 1.497 1.494 1.500 1.500 1.500 1.500 1.500 1.499 1.500 1.499 1.499 1.500 1.501 **ALUMINUM** WIDTH (fn.) 2.990 3.030 3.000 3.010 3.000 3.000 3.028 3.006 3.014 3.020 3.030 3.001 3.000 3.000 3.022 3.006 2.990 3.008 3.020 2.999 3.000 2.988 YIELD STR (Ket) 61.5 61.6 61.6 61.6 61.4 61.3 61.4 61.4 61.5 61.3 61.4 61.4 61.4 61.4 61.1 T-L Cont'd SPEC R.T. Cont'd TEST TEMP (°F) THICK (in.) 3.50 4.00 4.50 3.00 3.50 4.25 4.90 9.00 3. 6.00 3.50 4.90 5.50 4.50 4.50 5.50 25. 25. 4.31 6.00 4.25 1.76 6.50 PRODUCT FORM Plate Cont'd CONDITION **T851** Cont'd

23 of 61

	K _{Ie}	K, STAN DATE REFER	1978 MPC01	1978 MPC01	1980 RA001	1978 MPC01	1979 RA001	1978 MPC01	1978 MPC01	1978 RA001	1980 RA001	1978 MPC01	1978 GD003	Cont'd Cont'd 1978 GD003	1978 RA002	1978 MPC01	1978 GD003	1978 MPC01	1978 MPC01	1980 RA001	1980 RA001	1974 88742	1980 RA001	1974 88742
		K. (Keivin.)	22.60	28.80	28.10	29.30	24.00	23.00	24.40	25.60	23.79	24.50	25.70	25.70	25.79	21.60	26.00	22.90	27.90	22.90	28.70	28.20	27.40	26.70
		2.6 • (K _{L/} TY8)• (In.)	0.32	0.62	0.51	0.55	0.37	0.34	0.38	0.42	0.37	0.38	0.43	0.43	0.43	0.28	0.44	0.32	09:0	0.34	0.53	0.52	0.48	0.47
	CRACK	LENGTH (in.) A	1.546	1.587	1.556	1.049	1.031	1.562	1.587	1.647	1.505	1.667	2.100	2.100	1.561	1.531	2.100	1.543	1.511	1.544	1.697	ï	1.600	•
4 K _{Ie}	z	DESIGN	C.	ст	CT	CT	CT	CT	cr	CT	cr	CT	CT	СТ	CT	СŢ	CT	CT	CT	ÇĪ	CT	cr	CT	cr
1 2124	SPECIMEN	THICK (in.)	1.500	1.502	1.404	0.999	0.997	1.500	1.499	1.499	1.374	1.056	1.500	1.500	1.499	1.500	1.500	1.502	1.499	1.498	1.499	1.000	1.498	1.000
ALUMINUM	82	WIDTH (in.) W	3.029	2.994	2.994	2.017	1.998	3.004	2.994	3.000	3.002	2.994	3.000	3.000	3.000	3.002	3.000	3.026	3.022	2.995	2.994	2.000	3.002	2.000
AL		YIELD STR (Kel)	61.6	61.6	61.7	61.7	61.7	61.7	61.7	61.8	61.8	61.8	61.9	61.9	61.9	61.9	61.9	61.9	61.9	62.0	62.0	62.1	62.1	62.1
		SPEC											7:											
		TEST TEMP (°F)											E.E.	Cont'd										
	PRODUCT	THICK (in.)	6.50	2.25	3.00	2.70	3.00	2.00	4.00	2.50	3.00	2.50	5.50	6.50	2.50	4.25	6.50	4.25	3.12	3.62	2.00	2.50	4.50	2.50
	PRO	FORM											Plate	Cont'd										
		CONDITION		-									1851	Cont'd									-	

					ALUI	ALUMINUM	2124	K								
	PRODUCT	UCT				χ <u>α</u>	SPECIMEN	z	CRACK			K _{Io}				7
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (in.)	THICK (in.) B	DEBIGN	LENGTH (in.) A	2.6 ° (K _{he} TYS) ² (in.)	K. (Kaivin.)	K. MEAN	STAN	DATE	REFER	
		2.00		!	62.1	2.002	1.002	CT	1.062	0.32	22.29			1978	RA002	
		4.60		1	62.1	2.994	1.501	CT	1.527	0.50	28.30			1978	MPC01	
		4.25		!	62.1	2.978	1.500	CT	1.519	0.36	24.00			1978	MPC01	
		4.60		1	62.1	3.006	1.500	CT	1.533	0.50	28.20			1978	MPC01	1
		4.60			62.1	3.006	1.500	CT	1.603	0.55	29.40			1978	MPC01	T
		4.90			62.1	3.000	1.500	CT	1.617	0.40	25.10			1978	RA002	T
		2.50		!	62.1	2.000	1.000	CT		0.47	26.90	,		1974	88742	
		4.60			62.1	3.016	1.500	CT	1.508	09:0	28.10			1978	MPC01	Ī
		2.50			62.2	3.021	0.869	CT	1.420	0.40	25.40	·,		1978	MPC01	
		2.50			62.3	2.989	1.498	CT	1.584	0.36	24.10	, ,		1978	MPC01	
T851	Plate	1.73	R.T.	T-L	62.3	1.992	1.000	CT	1.016	0.36	24.10			1978	MPC01	
Cont'd	Cont'd	3.50	Cont'd	Cont'd	62.3	3.001	1.500	CT	1.581	0.45	26.60	Cont'd	Cont'd	1979	RA001	
		2.50			62.3	2.000	0.997	CT	1.040	0:30	21.90			1978	MPC01	
		3.00			62.3	3.002	1.375	CT	1.651	0.61	31.00			1980	RA001	
		6.50			62.4	2.988	1.499	CT	1.624	0.48	27.70			1978	MPC01	
		1.50			62.4	3.000	1.484	CT	1.556	0.42	25.60			1980	RA001	
		4.25			62.4	3.020	1.500	CT	1.540	0.34	23.10			1978	MPC01	
		2.50			62.4	2.964	1.500	CT	1.626	0.42	25.70	· · · · · · · · · · · · · · · · · · ·		1980	RA001	
		3.12			62.4	3.003	1.498	ст	1.565	0.50	28.10	,		1980	RA001	
		4.00		-	62.4	3.002	1.251	CT	1.644	0.33	22.70	·····		1980	RA001	
		3.00			62.4	3.008	1.482	СT	1.504	0.42	26.10	I		1978	MPC01	
		4.25			62.5	2.986	1.500	CT	1.523	0.34	23.30			1978	MPC01	

			i										-							-				
		REFER	RA001	RA002	RA002	RA002	MPC01	RA002	RA001	MPC01	RA001	84368	MPC01	84368	RA001	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	RA001	MPC01
	·	DATE	1980	1978	1978	1978	1978	1978	1980	1978	1978	1972	1978	1972	1980	1978	1978	1978	1978	1978	1978	1978	1980	1978
		STAN DEV												Cont'd			<u>.</u>							
	K _{Ie}	K. MBAN												Cont'd	,			.,					······	
		K. (Kelvin.)	23.60	25.00	23.40	26.20	26.80	25.60	23.60	27.20	29.40	26.80	26.10	26.40	22.60	27.20	23.40	24.70	21.80	24.00	25.30	28.20	29.70	25.00
		2.6 * (K _w ,TYS)* (in.)	0.35	0.39	0.35	0.43	0.44	0.41	0.35	0.46	0.54	0.46	0.42	0.44	0.32	0.48	0.34	0.38	0.28	0.36	0.40	0.48	0.55	0.38
	CRACK	LENGTH (in.) A	1.568	1.641	1.648	1.515	1.506	1.692	1.559	1.69.1	1.594	1.660	1.630	1.550	1.505	1.567	1.518	1.660	1.525	1.537	1.508	1.609	1.623	1.513
4 K _{Io}	z	DESIGN	C.	Ç	cr	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	СT	cr	CT	cr
[2124	SPECIMEN	THICK (in.)	1.363	1:187	1.496	1.301	1.501	1.499	1.498	1.498	1.498	1.600	1.500	1.500	1.498	1.301	1.500	1.500	1.500	1.500	1.497	1.448	1.399	1.503
ALUMINUM	0 2	WIDTH (in.) W	2.999	3.001	3.000	2.999	3.012	3.000	3.000	3.002	3.000	3.000	3.019	3.000	3.000	3.014	2.977	2.981	2.990	3.014	3.016	2.980	2.999	3.026
ALU		YIELD STR (Kei)	62.5	62.5	62.5	62.6	62.6	62.6	62.6	62.7	62.7	62.7	62.7	62.7	62.8	62.8	62.8	62.9	62.9	62.9	62.9	62.9	62.9	62.9
		SPEC	C C C C C C C C C C C C C C C C C C C																					
		TEST TEMP (°F)																						
	PRODUCT	THICK (in.)	3.00	3.00	2.75	3.00	4.50	2.60	3.50	4.00	3.12	3.50	4.00	3.50	3.00	3.00	4.25	9.00	4.25	4.25	2:00	3.12	3.00	2.00
	PRO	FORM											Plate	Cont'd										
		CONDITION											1861	Cont'd										

																				,	_			1
		REFER	MPC01	MPC01	MPC01	MPC01	MPC01	RA002	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	RA001	RA001	MPC01	RA002	MPC01	MPC01	RA001	MPC01	MPC01
		DATE	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1980	1980	1978	1978	1978	1978	1979	1978	1978
		STAN												Cont'd										
	K _{Ie}	K. MEAN			- 1 - 1 - 1									Cont'd										
		K. (Kelvin.)	25.20	27.40	25.70	25.50	24.20	25.90	22.90	22.00	22.90	22.20	27.20	22.80	26.30	24.00	25.40	23.40	25.40	26.30	26.30	23.40	23.30	26.50
		2.5 • (K, TYS)* (in.)	0.40	0.46	0.40	0.40	0.36	0.41	0.32	0.28	0.32	0:30	0.44	0:30	0.42	0.35	0.39	0.32	0.39	0.42	0.42	0.33	0.32	0.42
	CRACK		1.485	1.630	1.294	1.289	1.589	1.036	1.547	1.490	1.524	1.078	1.582	1.551	1.574	1.641	1.572	1.665	1.600	1.574	1.466	1.574	1.692	1.530
4 K _{Ie}	z	DESIGN	CT	CT	CI	CT	Ç	CT	CT	CT	cr	cr	Ç	ដ	CT	ÇŢ	CT	ÇŢ						
2124	SPECIMEN	THICK (in.) B	1.497	1.498	1.250	1.250	1.099	0.995	1.500	1.498	1.500	0.998	1.603	1.499	1.499	1.499	1.496	1.499	1.499	1.499	966.0	1.333	1.400	1.497
ALUMINUM	18	WIDTH (in.)	3.031	3.019	2.489	2.528	2.998	2.000	2.975	2.980	2.988	1.996	2.985	2.983	3.027	3.000	3.001	2.990	3.001	3.027	2.992	3.001	3.004	3.000
ALU		YIELD STR (Kel)	62.9	63.0	63.0	63.0	63.1	63.2	63.2	63.2	63.4	63.4	63.4	63.4	63.4	63.5	63.5	63.5	63.6	63.6	63.7	63.7	63.7	63.7
		SPEC	t		1				L		!		T.I.	Cont'd										
		TEST TEMP (°F)											R.T.	Cont'd										
	UCT	THICK (In.)	3.62	3.54	2.50	2.50	2.50	3.00	4.25	1.75	6.50	1.37	2.25	4.25	3.25	2.35	2.50	2:00	2.50	3.12	2.90	3.00	3.00	3.54
	PRODUCT	FORM											Plate	Cont'd									_	
		CONDITION											T851	Cont'd										

					ALUMI	ALUMINUM	1 2124	H.		7,10					
	PRO	PRODUCT				Sc	SPECIMEN	Z	CRACK			$\mathbf{K}_{\mathbf{I_o}}$		-	
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YTRLD STR (Kal)	WIDTH (in.) W	THICK (in.)	DESIGN	LENGTH (ln.) A	2.5 • (K _{s./} TYS)* (in.)	K. (Kelvin.)	K. MEAN	STAN	DATE	REFER
		2.50			63.8	3.028	1.498	CT	1.544	0.36	24.30			1978	MPC01
		2.76			63.8	2.999	1.498	CT	1.572	0.36	24.29			1980	RA001
		2.00			63.9	2.990	0.870	CT	1.465	0.34	24.20			1978	MPC01
		3.12			63.9	3.020	1.502	CT	1.480	0.46	27.60			1978	MPC01
		2.00			63.9	2.975	1.602	CT	1.517	0.44	27.20			1978	MPC01
		1.76			64.0	3.001	1.498	cr	1.554	0.33	23.29			1978	RA001
		2.50			64.0	2.989	1.499	CT	1.614	0.44	27.10			1978	MPC01
		3.00			64.1	3.001	1.428	СТ	1.591	0.43	26.60			1978	RA001
		2.00			64.1	3.028	1.498	CT	1.514	0.38	25.10			1978	MPC01
		3.00			64.1	1.998	866'0	CT	1.029	0.41	26.00			1979	RA001
1861	Plate	2.50	R.T.	T.L	64.1	2.999	1.498	CT	1.545	0.41	26.20			1980	RA001
Cont'd	Cont'd	1.25	Cont'd	Cont'd	64.1	2.016	0.999	CT	1.028	0.34	23.80	Cont'd	Cont'd	1978	MPC01
		2.50			64.2	2.000	1.000	CT	1.040	0.42	26.30			1972	84368
		4.00			64.2	4.004	2.000	CT	2.042	0.42	26.40			1978	MPC01
		1.76			64.2	2.996	0.751	CT	1.498	0:30	22.90			1978	MPC01
		4.00			64.2	3.000	1.500	CT	1.590	0.27	21.00			1972	84368
		1.75			64.2	2.998	1.601	СT	1.588	0.44	27.20			1980	RA001
		2.76			64.2	3.000	1.496	CT	1.570	0.47	27.90			1980	RA001
		3.50			64.2	3.000	1,500	CT	1.520	0.33	23.30			1972	84368
		2.76			64.2	2.987	1.497	CT	1.563	0.44	27.30			1978	MPC01
		3.00			64.2	3.017	1.496	cr	1.639	0.44	27.50	•		1978	MPC01
		4.00			64.2	3.975	1.999	CT	2.067	0.42	26.60			1978	MPC01

29 of 61

					ALU	ALUMINUM	[2124	14 K _{Io}							
	PRODUCT	oucr				502	SPECIMEN	Z	CRACK			K _{Ie}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIKLD STR (Kal)	WIDTH (in.)	THICK (in.) B	DESIGN	LENGTH (in.) A	2.5 * (K _{k./} TYS)* (in.)	K. (Kelvin.)	K. MBAN	STAN	DATE	REFER
		3.50		L	64.2	3.000	1.500	ст	1.520	0.32	22.80			1972	84368
		4.00		, I.	64.2	3.000	1.500	CT	1.590	0.26	20.80			1972	84368
		0.62			64.2	1.004	0.500	CT	0.612	0.46	28.00			1978	MPC01
		3.00			64.2	2.996	1.400	СŢ	1.648	0.34	24.20			1978	MPC01
		2.60			64.2	2.000	1.000	CT	1.060	0.41	26.10			1972	84368
		2.50			64.2	3.001	1.497	CT	1.564	0.30	22.60			1980	RA001
		2.75			64.2	3.002	1.373	СT	1.539	0.39	25.60			1980	RA001
		2.00			64.2	3.003	1.495	CT	1.533	0:30	22.50			1980	RA001
		2.00			64.4	2.993	1.499	СŢ	1.616	0.36	25.00			1978	MPC01
		2.50		1	64.4	4.000	2.000	CT	2.170	0.54	29.90			1972	84368
T851	Plate	3.62	R.T.	7:L	64.4	2.987	1.501	ĊТ	1.643	0:30	22.80			1978	MPC01
Cont'd	Cont'd	2.50	Cont'd	Cont'd	64.4	4.000	2.000	СТ	2.180	9.64	30.00	Cont'd	Cont'd	1972	84368
		2.00			64.4	3.000	1.498	CT	1.661	0.41	26.10			1980	RA001
		3.25			64.4	3.030	1.498	СŢ	1.515	0.38	25.60			1978	MPC01
		3.00			64.4	3.007	1.400	CT	1.624	0.36	25.00			1978	MPC01
		1.50			64.5	3.002	1.499	CT	1.512	0.36	24.79			1980	RA001
		1.76			64.5	3.004	1.500	CT	1.500	0.36	24.60			1978	RA002
		2.50		•	64.6	2.998	1.500	CT	1.668	0.37	25.10			1980	RA001
		2.50		•	64.6	3.031	1.499	CT	1.576	0.32	23.40			1978	MPC01
		2.20			64.6	3.003	1.498	cr	1.663	0.35	24.20			1980	RA001
		2.00			64.7	1.990	0.751	CT	1.004	0.29	21.90			1972	84306
		2.00			64.7	1.990	0.753	CT	1.025	0.32	23.20			1972	84306

MPC01 MPC01 RA002 MPC01 MPC01 MPC01 MPC01 MPC01 MPC01 MPC01 REFER MPC01 MPC01 MPC01 84306 MPC01 MPC01 84368 84368 84368 84368 84368 84368 DATE 1972 1978 1978 1978 1978 1978 1972 1978 1972 1978 1978 1972 1978 1972 1978 1978 1978 1978 1978 1978 1972 Cont'd STAN DEV Cont'd K. MEAN K K. (Kelvin.) 27.70 27.10 28.10 23.00 21.10 24.79 28.70 23.00 23.60 22.20 26.00 25.80 29.40 30.30 27.70 19.50 19.40 26.00 23.40 27.00 23.80 • (K_L/TYS)* (in.) 0.44 0.22 0.22 0.38 0.48 0.32 0.30 0.38 0.38 0.64 88 0.42 0.46 0.42 0.36 0.32 0.28 0.61 0.47 0.30 0.25 200 CRACK LENGTH (in.) 1.619 0.740 0.730 2.130 2,160 1.546 1.009 1.486 1.500 1.509 1.520 1.640 1.602 1.038 1.596 1.286 1.508 0.986 1.508 9860 1.464 1.294 K ÇŢ Ç ಕ Ç Ç C Ç Ç CŢ Ç ដ CT CI 5 Ç CL Ç CŢ CŢ Ç CT Ç 2124 SPECIMEN THICK (in.) B 1.493 1.500 1.500 1.500 0.750 0.750 1.400 1.250 1.499 2.000 1.250 2.000 0.998 0.999 1.500 1.504 0.996 0.998 1.247 1.153 1.497 0.751 **ALUMINUM** WIDTH (in.) W 4.000 2.012 3.016 2.018 2.988 2.972 3.000 3.018 3.000 3.023 1.500 1.500 2.998 2.000 2.489 3.011 4.000 1.996 3.001 2.037 3.000 2.622 YTELD STR (Kel) 64.8 64.9 64.9 64.9 64.9 66.0 64.8 64.8 64.8 64.8 65.1 65.2 66.2 66.2 65.1 66.2 T.L Cont'd SPEC R.T. Cont'd TEST TEMP (°F) THICK (in.) 2.60 3.00 1.12 1.50 2.00 1.67 1.57 3.12 2.04 2.04 2.50 2.50 2.26 2.50 2.35 3.54 2.35 3.00 2.00 2.50 2.00 2.50 PRODUCT Plate Cont'd FORM CONDITION T851 Cont'd

MPC01 MPC01 MPC01 MPC01 MPC01 RA002 MPC01 MPC01 RA002 RA002 MPC01 REFER MPC01 RA002 MPC01 RA001 RA001 RA001 84368 84368 RA001 84368 84368 DATE 1978 1978 1980 1972 1978 1978 1972 1978 1978 1978 1978 1972 1978 1972 1980 1980 1978 1978 1978 1978 1978 1978 Cont'd STAN Cont'd K. MBAN \mathbf{K}_{Io} K. (Kelvin.) 24.00 24.50 23.90 28.70 30.80 22.10 24.10 27.20 26.20 25.80 27.10 25.50 25.40 23.70 25.79 24.00 23.90 24.10 22.80 23.70 (K, TYS)* 0.42 0.40 0.38 0.35 0.42 0.38 0.37 0.32 0.38 0.32 0.33 0.32 0.33 0.28 0.34 0.33 0.46 0.34 0.32 0.65 0.34 0.27 CRACK LENGTH (In.) 1.579 1.048 1.546 1.580 1.580 1.009 1.540 1.540 1.568 1.514 1.540 1.628 1.558 1.664 1.651 1.067 1.561 1.560 1.564 1.537 1.484 1.531 \mathbf{K}_{Io} 5 Ç Ç ţ ວີ Ç Ç Ç ಕ Ç Ç Ç Ç ÇŢ Ç Ę Ç Ç Ç Ç CI ŗ 2124 SPECIMEN THICK (in.) B 1.500 1.400 1,499 0.999 1.136 1.500 1.441 1.502 1.499 1.500 1.478 1.500 1.478 1.497 1.500 0.899 1.500 0.999 1.500 1.099 1.497 1.501 **ALUMINUM** WIDTH (fn.) W 2.999 3.003 3.000 3.000 2.015 3.000 3.000 3.000 3.014 2.981 2.018 3.029 3.000 3.020 3.028 2.996 3.001 2.999 3.001 1.994 3.001 2.973 YIELD STR (Kel) 65.4 65.4 65.4 65.4 65.4 65.4 9.29 65.6 65.6 65.7 65.7 65.7 62.8 65.3 65.3 65.4 65.4 65.4 66.7 65.7 65.7 65.4 T-L Cont'd SPEC R.T. Cont'd TEST TEMP (°F) THICK (in.) 3.12 1.76 2.03 1.12 2.40 2.50 2.00 2.50 1.62 1.60 2.00 2.00 1.81 1.76 2.50 2.50 2.00 1.50 1.75 1.75 2.00 33. PRODUCT FORM Plate Cont'd CONDITION T851 Cont'd

32 of 61

					ALU	ALUMINUM	2	1124 K _{Io}							
	PROI	PRODUCT				SC	SPECIMEN	Z	CRACK			K _{Io}		·	
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (In.)	THICK (in.) B	DESIGN	LENGTH (in.) A	2.5 • (K _{t./} TYS)* (in.)	K. (Keivin.)	K. MEAN	STAN	DATE	RBFER
		0.87			65.8	1.502	0.750	CT	0.766	0.40	26.50			1978	MPC01
		0.87		1	65.8	1.508	0.750	CT	0.769	0.34	24.60			1978	MPC01
		2.25		1	65.8	2.002	0.999	СТ	1.041	0.32	24.30			1978	MPC01
		2.60			65.8	3.002	1.100	CT	1.528	0.31	23.40			1980	RA001
		2.25		<u>.</u>	65.8	3.008	1.493	CT	1.504	0:30	23.50			1978	MPC01
		1.76			62.9	3.003	1.503	СТ	1.552	0.36	25.20			1978	EA002
		3.00		L	66.0	2.500	0.755	СТ	1.270	0.35	24.60			1972	84306
		2.50		<u></u> !	66.0	3.017	0.999	CT	1.448	0:30	23.30			1978	MPC01
		3.00			66.0	2.500	0.754	CT	1.279	0.29	22.60			72.61	84306
	<u></u>	2.03			66.0	3.020	1.500	CT	1.510	0.50	30.20			1978	MPC01
T861	Plate	3.00	R.T.	T:L	66.0	3.026	1.247	CT	1.543	0.34	24.70			1978	MPC01
Cont'd	Cont'd	1.50	Cont'd	Cont'd	66.2	2.988	1.441	CT	1.624	0.38	26.20	Cont'd	Cont'd	8261	MPC01
		1.50			66.2	2.997	1.499	СТ	1.643	0.34	24.50			1978	RA001
		2.00			66.2	3.018	1.499	CT	1.539	0.38	26.10			1978	MPC01
		2.76			66.2	3.003	1.502	CT	1.584	0.43	27.70			1978	RA002
		2.50			66.2	1.997	0.999	CT	1.035	0.27	22.10			1979	RA001
		1.50			66.2	2.985	1.440	ст	1.662	0.40	26.60			1978	MPC01
		2.00			66.4	1.998	0.997	CT	1.019	0.92	24.50			1978	MPC01
		1.55		1	66.4	2.981	1.500	CT	1.550	0.28	23.00			1978	MPC01
		1.66		1	66.4	3.029	1.496	СT	1.484	0:30	23.70			1978	MPC01
		1.12		1	66.5	2.004	1.000	CT	1.022	0.36	25.40			1978	MPC01
		2.50			66.5	3.002	1.498	cr	1.644	0.36	25.50			1980	RA001

					ALU	ALUMINUM	1 2124	24 K _{Io}							
	PRO]	PRODUCT				uz	SPECIMEN	Z.	CRACK			K _{Io}		·	
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 • (K _{L,} /TYS)* (in.)	K. (Keivlin.)	K. MEAN	BTAN	DATE	REFER
		1.81			66.5	2.990	1.497	СŢ	1.495	0.34	24.70			1978	MPC01
		1.66			9.99	1.998	0:999	CT	1.014	0.28	23.30			1978	MPC01
		1.25			9.99	1.981	1.000	Ç	1.060	0.25	21.90	_		1978	MPC01
		1.73			66.7	2.999	1.499	CT	1.517	0.32	24.10			1978	RA002
		1.66			66.7	3.000	1.497	CT	1.522	0.91	23.60			1980	RA001
		2.50			86.8	1.987	0.998	CT	1.033	0.42	27.40			1978	MPC01
		1.50			6.99	1.983	0.999	CT	1.061	0.25	22.00			1978	MPC01
		1.50			67.1	2.998	1.496	cr	1.485	0.29	23.00			1978	RA001
		1.67			67.2	3.000	1.500	СТ	1.590	0.35	25.30			1972	84368
		1.57			67.2	3.000	1.500	cr	1.590	0.35	25.10	-		1972	84368
T851	Plate	1.67	R.T.	T.L	67.2	3.000	1.500	CT	1.560	0.32	24.00			1972	84368
Cont'd	Cont'd	1.67	Cont'd	Cont'd	67.2	3.000	1.500	cr	1.560	0.32	24.00	Cont'd	Cont'd	1972	84368
		1.50			67.2	3.002	1.492	ст	1.524	0.29	23.20			1980	RA001
		1.73			67.2	3.002	1.498	CT	1.550	0.32	24.10			1978	RA002
		1.66			67.2	3.001	1.497	CI	1.563	0.28	22.50			1979	RA001
		1.75		·	67.3	3.002	1.496	CT	1.518	0.31	23.79			1980	RA001
		2.62			67.6	2.000	1.000	CT	0.960	0.28	22.60			1972	84368
		2.62			67.6	2.000	1.000	ភ	0.980	0.29	23.10			1972	84368
		1.50			67.8	3.002	1.400	Į.	1.591	0.27	22.60			1978	MPC01
		1.75	•		67.8	3.009	1.499	CT	1.695	0.28	23.60			1978	MPC01
		1.37	- 1		68.4	2.978	1.376	CT	1.489	0.25	22.50			1978	MPC01
		1.62			9.69	3.000	1.451	CT	1.624	0.29	24.10			1980	RA001

					ALU	ALUMINUM	[2124	14 K _{Ie}							
	PRO	PRODUCT				SO.	SPECIMEN	Z	CRACK			K _{Ic}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC OR	YIELD STR (Kel)	WIDTH (in.)	THICK (in.) B	DESIGN	LENGTH (in.)	2.6 * (K _{b.} /TYB)* (in.)	K. (Kelvin.)	K. MRAN	STAN	DATE	REFER
		2.50		L	62.3	2.000	1.000	cr	ï	0.40	24.70			1974	88742
1361	Plate	2.50	R.T.	r.s	62.3	2.000	1.000	CT		0.43	25.80	26.6	0.7	1974	88742
		2.50			62.3	2.000	1.000	СТ		0.44	26.00			1974	88742
		1.50		!	ï	1.002	0.498	cT	0.489		18.40			1980	RA001
		1.50			i	1.00.1	0.497	CT	0.525		20.50			1980	RA001
		1.50		I	ı	1.001	0.601	CT	0.501		19.50			1978	RA001
		1.50		l	ı	1.00.1	0.502	CT	0.503		20.20			1978	RA001
		1.50		!	ı	1.00.1	0.497	CT	0.518	•	20.40			1980	RA001
		6.00			52.7	2.016	0.999	CT	1.068	0.48	23.40			8261	MPC01
		9.00		1	52.7	1.994	1.000	CT	0.977	0.44	22.30			1978	MPC01
		9.00		1	62.8	1.998	0.997	ст	1.029	0.51	23.90			1978	RA001
		9.00			63.0	2.000	1.000	CT	0.940	0.42	22.20			1978	MPC01
1.301	Ē	6.50	É		53.2	1.985	0.999	บี	1.052	0.44	22.50			1978	MPC01
1001	riate	5.60	F .1.	3	63.9	2.014	1.000	СŢ	0.987	0.62	24.80	21.7	2.1	1978	MPC01
		6.60		1	64.0	2.002	0.999	CT	1.021	0.50	24.60			1978	MPC01
		9:00			64.1	1.992	1.002	CT	0.996	0.48	24.30			1978	MPC01
		6.00		!	64.2	2.004	0.998	CT	1.002	0.34	20.50			1978	MPC01
		4.90		1	54.2	3.000	1.498	CT.	1.480	0.43	22.70			1978	RA002
		6.00		L	54.2	1.996	1.000	CT	0.998	0.34	20.10			1978	MPC01
		90.9		1	54.3	1.006	0.496	СŢ	0.533	0.34	20.50			1978	MPC01
-		5.50		1	54.3	2.019	0.999	СŢ	0.969	0.38	21.60			1978	MPC01
		6.12			54.4	1.991	0.999	CT	1.075	0.40	21.80			1978	MPC01
		4.90			54.4	1.988	1.000	Ę,	0.954	0.32	19.60			1978	MPC01

TABLE 7.9.2.1 (CONTINUED)

MPC01 MPC01 MPC01 MPC01 MPC01 MPC01 RA002 RA001 MPC01 MPC01 MPC01 MPC01 RA001 RA001 REFER MPC01 MPC01 RA001 RA001 RA001 84368 84368 1978 DATE 1979 1978 1978 1980 1980 1978 1980 1978 1978 1978 1980 1978 1978 1978 1980 1978 1978 1972 1972 Cont'd Cont'd K. MBAN \mathbf{K}_{Io} K. (Kelvin.) 23.10 22.80 24.50 24.50 21.90 23.10 25.90 23.90 24.20 20.90 24.60 24.80 22.40 21.29 21.60 21.29 23.60 19.20 21.80 20.90 8.6 * (K, TYS)* (ln.) 0.43 0.46 0.46 0.35 0.48 0.48 0.36 0.36 0.44 0.28 0.40 98.0 98.0 98.0 0.520.38 0.44 0.42 0.50 0.68 0.38 98.0 CRACK LENGTH (in.) 1.002 1.005 966.0 0.986 1.500 0.972 1.530 1.530 1.652 0.973 1.014 1.676 1.048 0.978 1.056 1.018 0.970 0.988 1.517 1.486 0.997 1.647 \mathbf{K}_{Io} DESIGN ಕ Ç 5 Ċ Ç 5 ភ ភ Ç ŗ \mathbf{cr} Ç Ç ដ ភ Ç Ç Ę Ç ŗ Ç ຽ 2124 SPECIMEN THICK (in.) B 1.000 1.000 1.498 0.999 966.0 1.500 1.00 1.000 1.500 1.000 0.998 1.500 1.500 1.500 1.199 966.0 0.998 0.998 0.996 966.0 1.500 0.999 **ALUMINUM** WIDTH (in.) 2.010 3.000 3.000 2.004 1.988 2.974 2.015 2.000 1.993 1.996 1.998 3.005 2.972 2.000 2.002 2.976 1.992 1.999 3.000 1.984 2.984 2.021 YIELD STR (Kal) 65.8 629 **26.0** 66.0 56.0 66.0 54.8 64.9 56.2 55.2 55.2 55.2 55.4 8.99 65.8 55.2 54.6 64.6 54.7 65.7 S-L Cont'd SPEC OR R.T. Cont'd TEST TEMP (°F) THICK (in.) 5.12 6.50 6.00 6.00 5.25 5.50 6.50 6.00 6.00 6.00 9.50 8.8 8. 9.0 6.50 6.00 9.00 6.00 4.60 5.00 6.76 9.9 PRODUCT FORM Plate Cont'd CONDITION T851 Cont'd

PHODUCT PHO						ALU	ALUMINUM	I 2124	24 K _{Io}							
FORM THICK TYPE SPEC THE THICK T		PRO	DUCT				82	PECIME	N.	CRACK			K _{Io}			
6.60 A. S. B.	CONDITION	FORM	THICK (in.)	TEMP TEMP (°F)	SPEC	YIRLD STR (Kai)	WII)TH (in.) W	THICK (in.) B	DESIGN	LENGTH (In.) A	2.5 * (K _{to} TYS)* (in.)	K. (Kelvin.)	K. MEAN	STAN	DATE	REFER
Fig. 1 Fig. 2 1.80 CT 1.01 0.60 24.50 1.80			5.50		1	56.1	1.990	1.000	CT	1.035	0.32	20.30			1978	MPC01
4.35 4.45 4.45 CT 0.667 0.587 22.00 1.989 CT 1.469			6.00			56.2	1.982	1.000	CI	1.011	0.48	24.80			1978	MPC01
5.00 A.50 1.480 CT 1.490 0.38 22.10 1.978 1.778 1.890 22.10 1.778 1.780 0.38 22.10 1.778 1.780 0.38 22.10 1.778 1.787 </td <td></td> <td></td> <td>4.25</td> <td></td> <td>1</td> <td>56.2</td> <td>2.000</td> <td>0.929</td> <td>Ç</td> <td>0.967</td> <td>0.33</td> <td>20.60</td> <td>_</td> <td></td> <td>1980</td> <td>RA001</td>			4.25		1	56.2	2.000	0.929	Ç	0.967	0.33	20.60	_		1980	RA001
Fig.			9.00			66.3	2.980	1.498	CT	1.490	0.38	22.10			1978	MPC01
4.50 A.50 6.6.3 1.001 CT 0.389 0.38 22.00 1978 1978 4.50 4.50 6.54 1.066 0.089 CT 1.018 0.282 20.80 1978 1978 4.00 4.00 CT 1.004 CT 1.004 0.28 22.29 1978 1978 5.50 A.10 CT 1.004 CT 1.004 0.28 22.29 1978 1978 5.50 A.10 CT 1.004 CT 1.004 0.46 24.40 1978 1978 Contd 6.50 1.004 CT 1.004 CT 1.004 0.46 24.40 1978 1978 5.50 Contd 6.56 1.004 CT 1.006 0.46 24.00 1978 1978 5.50 A.20 1.009 CT 1.000 CT 1.000 0.46 24.00 1978 1978 1978 5.50		·	6.50			56.3	2.010	1.000	CT	1.005	0:30	19.90			1978	MPC01
4.00 4.00 CT 10.08 CT 10.08 CT 10.08 CT 10.08 CT 10.08 CT 10.09 C		•	4.50			56.3	2.000	1.00.1	СТ	0.992	96.0	22.00			1978	RA002
6.5X Feb. 1006 CT 1.006 0.28 1830 1 1978 1978 1980			4.90			56.4	1.996	0.998	CT	1.018	0.32	20.60			1978	MPC01
Fig. 6.50 RT, Cont.4 66.6 1.894 CT 1.004 0.46 22.29 Cont.4 1.890 CT 1.004 0.46 22.29 Cont.4 1.890 CT 1.004 CT 1.004 0.46 22.40 1.978 1.978 Paleta 6.50 Cont.4 66.6 1.894 0.896 CT 1.007 0.48 22.50 Cont.4 1.978			6.25			56.4	2.016	1.000	CT	1.008	0.28	19.30			1978	MPC01
Plate Contided 6.500 R.T. Contided 6.00 Ge.6 1.984 0.989 CT 1.017 0.486 24.40 P. Contided 6.00 Contided 6.00 CT 1.017 0.989 CT 1.020 0.46 24.70 1.078 1.020 0.48 22.00 1.089 CT 1.020 0.48 22.00 1.078 1.020 0.38 22.00 1.079 0.77 1.020 0.38 22.00 1.078 0.77 1.020 0.38 22.00 1.078 0.77 1.020 0.38 22.00 1.078 0.77 1.080 0.38 22.00 1.078 0.77 1.080 0.38 22.00 1.078 0.38 0.38 22.00 1.078 0.38 0.38 0.39 22.00 1.079 0.38 0.39 0.37 0.370 1.079			4.00			56.5	2.002	0.997	CT	1.026	0.38	22.29			1980	RA001
Cont'd 6.60 R.T. 6.6 1.994 0.999 CT 1.017 0.38 22.50 Cont'd 1978 Cont'd 6.00 1.994 0.999 CT 1.017 0.38 22.50 Cont'd 1978 Loot'd 6.00 1.999 0.999 CT 1.460 0.44 24.70 1978 1978 Loot'd 6.50 1.090 1.000 CT 1.052 0.38 22.00 1978 1978 4.00 6.50 1.090 0.77 1.062 0.38 21.59 1978 1978 4.00 6.50 2.000 0.999 CT 0.986 0.43 23.60 1978 1978 5.50 6.50 1.992 0.999 CT 0.986 0.30 20.10 1978 1978 6.50 6.50 1.992 0.999 CT 1.009 0.39 20.20 1979 1978 6.50 6.50 1.996			6.50			56.6	2.008	1.000	CT	1.004	0.46	24.40			1978	MPC01
Contd 6.00 Contd Gest 1.696 CT 0.696 CT <t< td=""><td>1361</td><td>Plate</td><td>6.50</td><td>E.T.</td><td>3.1</td><td>56.6</td><td>1.994</td><td>0.999</td><td>CT</td><td>1.017</td><td>0.38</td><td>22.50</td><td></td><td></td><td>1978</td><td>MPC01</td></t<>	1361	Plate	6.50	E.T.	3.1	56.6	1.994	0.999	CT	1.017	0.38	22.50			1978	MPC01
66.6 3.033 1,499 CT 1,466 0,46 24.70 1978 56.6 2.000 1,000 CT 1,062 0.36 22.00 1978 56.7 1,099 1,000 CT 1,062 0.35 21.29 1978 56.7 2,000 1,499 CT 1,696 0.36 21.60 1980 56.7 1,992 0,897 CT 0,866 0.32 20.70 1978 56.8 2,012 1,000 CT 1,009 0,36 21.80 1978 56.8 2,012 1,000 CT 1,006 0,36 20.20 1978 56.8 2,008 0,998 CT 1,009 0,36 20.20 1978 56.8 2,012 1,000 CT 1,006 0,36 20.20 1978 56.8 2,008 1,096 CT 1,004 0,38 20.20 1978 56.8 2,008 1,000 <td>Cont'd</td> <td>Cont'd</td> <td>6.00</td> <td>Cont'd</td> <td>Cont'd</td> <td>56.6</td> <td>1.998</td> <td>0.998</td> <td>ст</td> <td>0.998</td> <td>0.43</td> <td>23.50</td> <td>Cont'd</td> <td>Cont'd</td> <td>1978</td> <td>RA001</td>	Cont'd	Cont'd	6.00	Cont'd	Cont'd	56.6	1.998	0.998	ст	0.998	0.43	23.50	Cont'd	Cont'd	1978	RA001
66.6 2,000 1,000 CT 1,020 0.36 22,00 1978 66.7 1,099 1,000 CT 1,686 0,43 23,60 1978 66.7 2,000 0,998 CT 0,980 0,36 21,60 1990 66.7 1,992 0,998 CT 0,966 0,32 20,70 1978 66.7 1,998 CT 1,009 0,37 22,10 1978 66.8 2,012 1,000 CT 1,009 0,36 21,80 1978 66.8 1,996 0,999 CT 1,009 0,36 20,20 1978 66.8 1,996 0,999 CT 1,009 0,36 20,20 1978 66.8 2,008 0,099 CT 1,009 0,36 20,20 1978 66.8 2,008 1,000 CT 1,004 0,28 20,20 1978 66.8 2,008 1,000 CT			4.62			56.6	3.033	1.499	CT	1.456	0.46	24.70			1978	MPC01
66.6 1.999 1.000 CT 1.062 0.36 21.29 1878 56.7 3.000 1.499 CT 1.686 0.43 23.60 1978 56.7 2.000 0.998 CT 0.980 0.36 21.60 1980 66.7 1.998 CT 1.009 0.37 22.10 1979 56.8 2.012 1.000 CT 1.006 0.36 21.80 1978 66.8 1.996 0.999 CT 1.006 0.36 20.20 1978 66.8 1.996 0.999 CT 1.006 0.36 20.20 1978 66.8 2.008 1.000 CT 1.004 0.28 1970 1978			6.50			56.6	2.000	1.000	CT	1.020	0.36	22.00			1978	MPC01
66.7 3.000 1.499 CT 1.596 0.48 23.60 1978 66.7 2.000 0.998 CT 0.986 0.36 21.60 1990 66.7 1.992 0.997 CT 1.009 0.37 22.10 1978 56.8 2.012 1.000 CT 1.006 0.36 21.80 1978 66.8 1.996 0.999 CT 1.006 0.36 20.20 1978 66.8 2.008 1.000 CT 1.004 0.28 20.20 1978 66.8 2.008 1.000 CT 1.004 0.28 1970 1978			2.50		-	56.6	1.999	1.000	cr	1.052	0.35	21.29			1978	RA002
66.7 2.000 0.998 CT 0.980 0.36 21.60 1980 66.7 1.992 0.997 CT 0.966 0.82 20.70 1978 66.7 1.998 0.998 CT 1.009 0.87 22.10 1979 66.8 2.012 1.000 CT 1.006 0.36 21.80 1978 66.8 1.996 0.999 CT 0.996 CT 1.004 0.28 19.70 1978 66.8 2.008 1.000 CT 1.004 0.28 19.70 1978			4.90			56.7	3.000	1.499	cr	1.596	0.43	23.60			1978	RA002
66.7 1.992 0.897 CT 0.966 0.32 20.70 1978 66.7 1.998 CT 1.009 CT 1.006 0.36 21.80 1979 66.8 1.996 0.999 CT 1.006 0.36 21.80 1978 66.8 1.996 0.999 CT 0.996 0.30 20.20 1978 66.8 2.008 1.000 CT 1.004 0.28 1970 1978			4.00			56.7	2.000	0.998	CI	0.980	0.36	21.60			1980	RA001
66.7 1.998 0.998 CT 1.009 0.87 22.10 1979 66.8 2.012 1.000 CT 1.006 0.36 21.80 1978 66.8 1.996 0.999 CT 0.996 0.30 20.20 1978 56.8 2.008 1.000 CT 1.004 0.28 19.70 1978			9.50			66.7	1.992	0.997	CT	0.966	0.32	20.70			1978	MPC01
56.8 2.012 1.000 CT 1.006 0.36 21.80 1978 56.8 1.986 0.999 CT 0.996 0.30 20.20 56.8 2.008 1.000 CT 1.004 0.28 19.70			4.50			56.7	1.998	0.998	СŢ	1.009	0.37	22.10			1979	RA001
66.8 1.996 0.999 CT 0.996 0.30 20.20 1978 56.8 2.008 1.000 CT 1.004 0.28 1870 1978			6.50			56.8	2.012	1.000	CT	1.006	0.36	21.80			1978	MPC01
56.8 2.008 1.000 CT 1.004 0.28 19.70 1978		-	4.62			66.8	1.996	0.999	CI	0.996	0.30	20.20			1978	MPC01
			5.60			86.8	2.008	1.000	CT	1.004	0.28	19.70			1978	MPC01

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	REFER	RA002	MPC01	RA001	RA001	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	RA001	MPC01	RA001	MPC01	MPC01	MPC01	MPC01	84368	84368	RA001	84368	84368
-	DATE	1978	1978	1979	1980	1978	1978	1978	1978	1978	1978	1980	1978	1980	1978	1978	1978	1978	1972	1972	1978	1972	1972
	BTAN DEV												Cont'd										
$\mathbf{K}_{\mathbf{Ic}}$	K,												Cont'd										
	K. (Keivin.)	22.00	22.60	21.40	21.50	19.70	17.70	18.30	18.50	23.50	19.00	22.79	20.50	19.00	21.60	21.60	23.20	19.90	25.80	24.90	21.20	23.90	23.60
	2.6 • (K _{*,,} TYS)° (in.)	0.37	0.38	0.35	0.35	0.28	0.24	0.25	0.25	0.42	0.27	0.59	0:30	0.27	0.34	0.34	0.40	0.28	0.51	0.47	0.34	0.43	0.42
CRACK		1.526	1.494	1.005	0.984	1.00.1	1.017	1.007	0.997	1.069	1.000	0.980	0.999	0.774	1.004	1.005	1.006	1.005	1.540	1.540	1.022	1.470	1.500
z	DESIGN	CT	CT	CT	CT	CT	CT	CT	CT	cr	CT	cr	CT	ಕ	CT	СŢ	СŢ	cr	СТ	СТ	CT	CT	CT
SPECIMEN	THICK (fn.) B	1.499	1.499	0.998	0.999	1.000	1.000	1.000	1.000	0.999	1.000	0.998	1.000	0.748	1.000	1.000	1.000	1.000	1.500	1.500	0.999	1.500	1.500
52	WIDTH (in.) W	3.000	2.988	1.997	2.002	2.002	1.994	2.014	1.994	2.017	2.000	2.000	1.998	1.503	2.008	2.010	2.012	2.010	3.000	3.000	1.998	3.000	3.000
	YIBLD STR (Ket)	66.8	6.99	6.99	6.99	67.0	67.0	67.0	67.0	67.0	67.1	57.1	57.1	57.1	67.1	57.1	67.1	57.3	67.3	67.3	67.3	57.5	57.5
	SPEC						-					S.L	Cont'd										
	TEST TEMP (°F)		-									R.T.	Cont'd		····					· · · · · · · · · · · · · · · · · · ·			
PRODUCT	THICK (in.)	4.90	2.00	6.00	4.00	6.50	6.50	6.60	6.50	4.50	6.60	4.75	6,60	2.30	6.50	6.50	9.00	6.50	4.50	4.50	4.00	6.50	6.50
PRO	FORM											Plate	Cont'd	***									
	CONDITION											1861	Cont'd										

					ALU	ALUMINUM	1 2124	24 K _{Io}							
	PRODUCE					82	SPECIMEN	Z	CRACK			$\mathbf{K}_{\mathbf{I}_{\mathbf{c}}}$			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (In.) A	2.5 • (K _{b./} TYB)* (In.)	K. (Ketvlin.)	K. MBAN	BTAN DEV	DATE	REFER
		6.50			67.5	1.998	1.000	cr	0.999	0.28	20.00			1978	MPC01
		4.00		1	67.5	2.000	0.999	cr	0.984	0.33	21.20			1980	RA001
		6.60			57.5	1.988	1.000	C.	1.014	0.42	23.70			1978	MPC01
		6.50		•	67.6	1.988	1.000	CT	1.014	0.28	19.90			1978	MPC01
-		4.31			67.6	1.992	0.999	СT	1.036	0.34	21.60			1978	MPC01
		5.50		1	67.6	2.006	0.999	СT	1.003	0.32	20.80			1978	MPC01
		4.00		1	57.6	3.001	1.500	G.	1.564	0.34	21.50			1978	RA001
		6.60			67.6	1.986	1.000	CT	0.993	0.34	21.60			1978	MPC01
		5.00			67.6	1.998	0.997	CT	0.997	0.36	22.10			1978	RA001
		9.00			67.6	1.992	1.000	CT	1.016	0.40	23.20			1978	MPC01
T851	Plate	4.66	R.T.	3.5	67.6	2.004	0.999	ст	0.985	0.34	21.50			1980	RA001
Cont'd	Cont'd	6.50	Cont'd	Cont'd	67.7	2.022	1.000	CT	1.011	0.30	20.20	Cont'd	Cont'd	1978	MPC01
		4.50			57.3	2.017	0.999	CT	1.049	0.38	22.90			1978	MPC01
		3.00			67.8	2.002	1.001	СŢ	1.001	0.30	20.70			1978	MPC01
		4.00			67.8	2.987	1.498	CT	1.643	0.40	23.50			1978	MPC01
		5.50			67.8	2.000	1.000	cr	1.000	0.36	22.00			1978	MPC01
		3.60			67.8	1.993	1.00.1	CT	1.096	0.32	21.00	···	·	1978	MPC01
		6.00			67.8	2.000	1.001	CT	1.009	0.29	19.70	· · · •		1978	RA002
		6.50			67.8	1.984	1.000	CT	1.012	0.42	24.20			1978	MPC01
		6.50			67.9	1,992	1.000	CT	0.996	0.28	20.00			1978	MPC01
		6.50			67.9	2.008	1.000	cr	1.004	0.25	19.00			1978	MPC01
		3.62			68.0	2.006	0.998	CT	1.003	0.32	21.30			1978	MPC01

TEST SPEC VIELD (In.)	PRODUCE	LO10			ALU	ALUMINUM	M 2124 SPECIMEN	K _{Ie}				×			
CF) CKei) (In.) Dissign A B CT 1,504 CT 1,504 CT 1,504 CT 1,504 CT 1,504 CT 1,504 CT 1,005 CT 1,001 CT 1,002 CT 1,003 CT	L	¥		SPEC	YIELD	- 1	THICK	2	CRACK LENGTH (in.)	2.6 • (K, TYS)* (in.)	×	P _I	RTAN	DATE	REFER
R.T. R.T. R.T. R.T. Cont'd G8.3 2,004 1,001 CT 1,002 CG G8.1 2,010 1,000 CT 1,001 CG G8.1 2,016 1,000 CT 1,003 CG G8.1 2,016 1,000 CT 1,001 CG G8.1 2,002 1,000 CT 1,001 CG G8.1 2,004 1,001 CT 1,016 CG G8.2 2,004 0,994 CT 1,026 CG G8.2 2,004 0,999 CT 1,026 CG G8.2 1,998 1,000 CT 1,026 CG G8.3 1,996 1,000 CT 1,001 CG G8.3 1,996 1,000 CT 1,001 CG G8.3 1,996 1,000 CT 1,001 CG G8.3 1,996 1,000 CT 1,004 CG G8.3 1,996 1,000 CT 1,009 CG G8.3 1,996 1,000 CT 1,009 CG G8.3 1,996 1,000 CT 1,099 CG G8.3 1,996 1,000 CT 1,001 CT 1,099 CG G8.3 1,996 1,000 CT 1,099 CG G8.3 1,996 1,000 CT 1,099 CG G8.3 1,996 1,000 CT 1,099 CT 1,099 CG G8.3 1,996 1,000 CT 1,099 CT 1,099 CG G8.3 1,996 1,000 CT 1,001 CT 1,099 CG G8.3 1,996 1,000 CT 1,099 CT 1,099 CG G8.3 1,996 1,000 CT 1,099 CT 1,099 CG G8.3 1,996 1,000 CT 1,001 CT 1,099 CG G8.3 1,996 1,000 CT 1,001 CT 1,099 CG G8.3 1,996 1,000 CT 1,001 CT 1,009 CT 1,009 CG G8.3 1,996 1,000 CT 1,000 CT 1,009 CG G8.3 1,996 1,000 CT 1,		(fn.)		5	(Kat)	(ln.)	(jp.)	DEBIGN	٧		(Ketvin.)	MEAN	DEV		
R.T. S.L. 68.2 2.004 1.001 CT 1.002 CG 68.1 2.016 1.000 CT 1.008 CG 68.1 1.086 1.000 CT 1.008 CG 68.1 1.086 1.000 CT 1.001 CG 68.1 2.016 1.000 CT 1.001 CG 68.1 2.002 1.000 CT 1.011 CG 68.1 2.002 1.000 CT 1.011 CG 68.1 2.003 1.001 CT 1.010 CG 68.1 2.004 0.099 CT 1.010 CG 68.2 2.010 1.001 CT 1.029 CG 68.2 2.004 0.099 CT 1.020 CG 68.2 2.004 0.099 CT 1.012 CG 68.2 2.006 0.0999 CT 1.012 CG 68.3 1.000 CT 1.000 CT 1.010 CG 68.3 1.000 CT 1.000 CT 0.0998 CG 68.3 1.000 CT 0.0999 CT 1.010 CT 0.0999 CG 68.3 1.000 CT 0.0999 CT 1.001 CT 0.0999 CG 68.3 1.000 CT 0.0999 CT 0.0999 CG 68.3 1.000 CT 0.0999 CT 0.0999 CG 68.3 1.000 CT 0.0999 CT		6.50		1	68.0	3.008	1.601	CT	1.504	0.38	23.10			1978	MPC01
R.T. S.L G.N. G.T 1.006 CT 1.005 C G G G G G G G G G G G G G G G G G G		4.00			68.0	2.004	1.001	СŢ	1.002	98.0	22.30		-	1978	MPC01
R.T. S-L 5.016 1.000 CT 1.013 COT 1.013 COT 1.014 COT 1.001 CT 1.004 CT 1.004 CT 1.004 CT 1.004 CT 1.000 CT 1.001 CT 1.000 CT 1.0000 CT 1.00000 CT 1.0000 CT 1.00000 CT 1.0000 CT 1.00000 CT 1.0000 CT 1.0000 CT 1.0000 CT 1.0000 CT 1.0000 CT 1.00000 CT 1.0000 CT 1.0000 CT 1.00000 CT 1.0000 CT 1.00000 CT 1.000000000000000000000000000000000000		2.00			58.1	2.010	1.000	CT	1.005	0.38	23.00			1978	MPC01
RT. St. 2.016 1,000 CT 1,008 CT 1,008 CT 1,009 CT 1,001 CT 1,004 CT 1,009 C		2.50			68.1	1.986	1.000	CT	1.013	0.40	23.80			1978	MPC01
R.T. S.L 2.002 1,000 CT 1.001 C 1 1.001 C 1 1.001 C 1 1.001 C 1 1.004 C 1 1.001 C 1 1.		5.50			58.1	2.016	1.000	СТ	1.008	0.38	22.70			1978	MPC01
R.T. S.L Gell 1.600 CT 1.612		6.50		1	58.1	2.002	1.000	CT	1.001	0.40	23.40			1978	MPC01
R.T. S.L. 58.1 2.008 0.996 CT 1.004 CT 1.004 CT 1.016 COT 1.010 CT 1.029 CT 1.029 CT 1.029 CT 1.025 CT		6.50			58.1	3.024	1.500	ст	1.512	0.42	23.90			1978	MPC01
R.T. S.L. G8.1 2.000 1.001 CT 1.016 G0.1 Cont'd C8.2 2.004 0.997 CT 1.029 G8.2 2.004 0.997 CT 1.029 G8.2 2.006 0.999 CT 1.025 G8.2 2.006 0.999 CT 1.025 G8.2 1.984 0.999 CT 1.025 G8.3 1.996 1.000 CT 0.998 G8.3 2.016 1.000 CT 0.998 G8.3 2.016 1.001 CT 0.999 G8.3 1.998 1.000 CT 0.999 G8.3 1.998 1.000 CT 0.999 G8.3 1.998 1.000 CT 0.999		2.50			58.1	2.008	966.0	CT	1.004	0:30	20.50			1978	MPC01
R.T. S.L. 68.1 2.000 1.001 CT 1.010 COnt'd 68.2 2.004 0.997 CT 1.029 COnt'd 68.2 2.004 0.997 CT 1.026 COnt'd 68.2 2.004 0.999 CT 1.026 CT 1.026 CT 1.026 CT 1.026 CT 1.026 CT 1.026 CT 1.028 CT 1.030 CT		6.00			58.1	1.992	1.000	CT	1.016	0.34	21.50			1978	MPC01
Cont'd Cont'd 68.2 2.004 0.997 CT 1.029 CONT'd 68.2 2.004 0.997 CT 1.026 CONT'd 68.2 2.006 0.999 CT 1.025 CB.2 2.006 0.999 CT 1.025 CB.2 2.006 0.999 CT 1.012 CB.3 1.996 1.000 CT 0.998 CT 1.504 CB.3 2.016 1.001 CT 0.998 CT 1.504 CB.3 2.016 1.001 CT 0.998 CB.3 2.016 1.001 CT 0.998 CB.3 2.016 1.001 CT 0.999 CT 0.999 CB.3 1.998 1.000 CT 0.999 CT 0.999 CB.3 1.998 1.000 CT 0.999		4.90			58.1	2.000	1.001	CT	1.010	0.34	21.60			1978	RA002
Cont'd Cont'd 68.2 2.004 0.997 CT 1.030 68.2 2.010 1.000 CT 1.025 7.000 68.2 2.010 1.000 CT 1.025 7.000 68.2 2.006 0.999 CT 1.023 68.2 1.984 0.999 CT 1.012 68.3 1.996 1.000 CT 0.998 7.009 68.3 2.016 1.001 CT 0.998 7.009 68.3 1.998 1.000 CT 0.999 69.3 2.016 1.001 CT 0.999 7.000 CT 0.999 7.0000 CT 0.999	Plate	2.60	R.T.	1.8	58.1	2.018	1.000	cr	1.029	0.42	24.30			1978	MPC01
68.2 2.010 1,000 CT 1,025 68.2 1.988 1,002 CT 0,974 68.2 2.066 0,999 CT 1,023 68.2 1,984 0,999 CT 1,012 68.3 3,008 1,500 CT 1,504 68.3 1,996 1,000 CT 0,998 68.3 2,016 1,001 CT 0,998 68.3 1,998 1,000 CT 0,999 68.3 1,998 1,000 CT 0,999		3.00	Cont'd	Cont'd	58.2	2.004	0.997	cr	1.030	0.31	20.70	Cont'd	Cont'd	1980	RA001
68.2 1.988 1.002 CT 0.974 68.2 2.006 0.999 CT 1.023 68.2 3.008 1.500 CT 1.012 68.3 1.996 1.000 CT 0.998 68.3 3.020 1.500 CT 0.998 68.3 2.016 1.001 CT 0.998 68.3 1.998 1.000 CT 0.999 68.3 1.998 1.000 CT 0.999		6.50			58.2	2.010	1.000	CT	1.025	0.30	20.50			1978	MPC01
68.2 2.006 0.989 CT 1.023 68.2 1.984 0.989 CT 1.012 68.2 3.008 1.600 CT 1.604 68.3 1.996 1.000 CT 0.998 68.3 2.016 1.600 CT 1.510 68.3 1.998 1.000 CT 0.999 68.3 1.998 1.000 CT 0.999		2.70			58.2	1.988	1.002	CT	0.974	0.42	24.10			1978	MPC01
68.2 1.984 0.999 CT 1.012 68.2 3.008 1.500 CT 1.504 68.3 1.996 1.000 CT 0.998 68.3 2.016 1.000 CT 0.998 58.3 2.016 1.001 CT 0.998 58.3 1.998 1.000 CT 0.999		90.9			58.2	2.006	0.999	CT	1.023	0.40	23.40			1978	MPC01
68.2 3.008 1.500 CT 1.504 68.3 1.996 1.000 CT 0.998 68.3 2.016 1.001 CT 0.998 68.3 1.998 1.000 CT 0.999 68.3 1.998 1.000 CT 0.999		6.00	-		68.2	1.984	0.999	Ţ.	1.012	0.38	22.90			1978	MPC01
68.3 1.996 1.000 CT 0.998 68.3 3.020 1.500 CT 1.510 68.3 2.016 1.001 CT 0.988 68.3 1.998 1.000 CT 0.999		5.50			58.2	3.008	1.500	ភ	1.504	0.40	23.70			1978	MPC01
68.3 3.020 1.500 CT 1.610 68.3 2.016 1.001 CT 0.988 68.3 1.998 1.000 CT 0.999		5.50			58.3	1.996	1.000	Ţ	0.998	0.30	20.60			1978	MPC01
58.3 2.016 1.001 CT 0.988 58.3 1.998 1.000 CT 0.999		6.25			58.3	3.020	1.500	CT	1.510	0.44	24.80			1978	MPC01
68.3 1.998 1.000 CT 0.999 68.3 1.998 1.000 CT 0.999		3.12			68.3	2.016	1.001	CT	0.988	0.36	22.40			1978	MPC01
58.3 1.998 1.000 CT 0.999		6.60			58.3	1.998	1.000	ÇL	0.999	0.30	20.50			1978	MPC01
		6.50			58.3	1.998	1.000	CT	0.999	0:30	20.60			1978	MPC01

39 of 61

					ALU	ALUMINUM	[2124	4 K _{lo}							
	PRO	PRODUCT				S	SPECIMEN	z	CRACK			Kı			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (In.)	THICK (in.)	DESIGN	LENGTH (in.) A	2.5 * (K _{L,} TYS)* (in.)	K. (Kelvin.)	K, MEAN	STAN	DATE	REFER
		6.60			68.3	2.014	1.000	CT	1.007	0.40	23.40			1978	MPC01
		6.50			68.3	2.014	1.000	cr	1.007	0.28	20.00			1978	MPC01
		3.00			68.3	2.000	0.998	СŢ	0.983	0.32	20.90			1980	RA001
		6.50			58.3	2.016	0.990	CT	1.008	0:30	20.90			1978	MPC01
		6.60			58.3	2.004	0.999	cr	1.002	0.50	26.60			1978	MPC01
		4.00			58.4	1.999	1.000	CT	1.015	0.28	19.79			1979	RA001
		1.81			58.4	1.502	0.748	CT	0.766	0.24	18.50			1978	MPC01
		4.50	***************************************		58.4	2.978	1.500	CT	1.489	0.46	25.20			1978	MPC01
		6.50		······································	58.4	2.020	0.997	CT	1.010	82'0	20.40			1978	MPC01
		6.00			58.4	3.010	1.500	CT	1.565	0.40	23.40			1978	MPC01
T861	Plate	2.50	R.T.	9.L	58.5	1.996	1.000	cr	0.998	0.30	20.70			1978	MPC01
Cont'd	Cont'd	6.50	Cont'd	Cont'd	58.5	2.018	1.000	CT	1.009	0.34	22.00	Cont'd	Cont'd	1978	MPC01
		4.25	,		58.5	1.987	0.999	CT	1.033	0.40	03.50			1978	MPC01
		4.25			68.5	1.996	1.000	CT	0.998	0.27	19.60			1978	MPC01
	-	6.00			58.6	1.983	0.999	CT	1.031	0.36	22.30			1978	MPC01
		6.50			58.6	2.006	0.999	CT	1.003	0.30	20.80			1978	MPC01
		3.50			58.6	2.008	1.000	ಕ	1.024	0.34	21.80			1978	MPC01
		2.00			58.6	1.988	1.000	CT	1.014	0.42	24.50			1978	MPC01
		6.50			58.6	2.008	1.000	CT	1.004	0.40	23.90			1978	MPC01
		4.50			68.6	2.996	1.500	ст	1.498	0.48	26.00			1978	MPC01
		9.00			68.6	1.994	0.999	CT	1.017	0.38	23.00			1978	MPC01
		4.00			68.6	1.996	0.999	CT	0.998	0.32	21.10			1978	MPC01

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SLE 7.9.2.1 (CONTINUED)	
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LE 7.9 .	
TABLE	

SPEC Y OR		_	Œ.		2				7			
THICK TEMP (°F)		VIELD	ga	SPECIMEN	z	CRACK	S K • (K myg)s		F			
		STR (Ket)	WIDTH (fn.)	THICK (In.) B	DESIGN	(fn.)	(ln.)	K. (Kelvin.)	K. MBAN	BTAN DEV	DATE	REFER
09:9		68.6	1.998	1.000	CT	0.999	0.38	22.90			1978	MPC01
6.50		68.6	2.018	0.999	CT	1.009	0.48	26.00			1978	MPC01
6.50		58.7	2.010	1.000	CT	1.005	0.27	19.50			1978	MPC01
3.64	·	58.7	1.998	0.997	CT	0.999	0.32	21.70			1978	MPC01
6.50		68.8	2.016	1.000	CT	1.008	0.48	26.00			1978	MPC01
6.50		58.8	2.004	0.998	CT	1.002	0.38	23.20			1978	MPC01
6.50		68.8	2.000	1.000	CT	1.000	0.36	22.50			1978	MPC01
4.25		68.8	2.002	1.000	Į.	1.001	0.34	21.90			1978	MPC01
3.50		8'89	1.996	1.000	CT	1.078	0.30	20.70			1978	MPC01
6.50		58.8	2.014	1.000	CT	1.007	0.34	22.30			1978	MPC01
4.50 R.T.	- ST	58.8	2.999	1.500	CT	1.487	0.34	21.79			1978	RA002
5.50 Cont'd	t'd Cont'd	68.8	2.006	0.998	CT	1.003	0.40	23.80	Cont'd	Cont'd	1978	MPC01
5.50		689	2.020	1.000	CT	1.010	0.28	20.30			1978	MPC01
4.00		68.9	1.984	1.001	CT	1.012	0.38	23.10			1978	MPC01
4.50		68.9	2.992	1.500	CT	1.496	0.44	25.00			1978	MPC01
4.25		69.0	1.996	1.000	СТ	1.018	0.36	23.00			1978	MPC01
6.00		59.1	1.988	1.000	CT	1.014	0.94	22.00			1978	MPC01
6.00		59.1	1.986	1.000	CT	1.013	0.34	22.00			1978	MPC01
6.50		59.1	2.000	1.000	ÇĪ	1.400	0:30	20.79			1978	GD003
6.50		69.1	2.002	1.000	ÇŢ	1.001	98.0	22.80			1978	MPC01
6.50		59.1	2.000	1.000	CT	1.400	0.94	22.00			1978	GD003
6.50		59.1	1.996	1.000	CT	0.998	0.28	20.20			1978	MPC01

Γ		ER	301	701	RA002	201	GD003	MPC01	RA001	201	MPC01	201	MPC01	MPC01	MPC01	MPC01	84368	MPC01	MPC01	84368	MPC01	MPC01	MPC01	MPC01
		REFER	MPC01	MPC01	RAG	MPC01	GD(MP(RA(MPC01	MP(MPC01								_	\dashv			
		DATE	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1972	1978	1978	1972	1978	1978	1978	1978
		STAN												Cont'd										
	K _{Io}	K. MRAN												Cont'd										
		K. (Keivin.)	21.60	23.00	20.29	25.90	21.40	24.30	23.70	22.90	21.80	26.30	26.10	22.90	23.90	24.90	23.40	24.40	24.70	24.80	26.90	21.20	24.00	22.20
		2.6 • (K _{t.,} TY8) ² (In.)	0.32	0.36	0.29	0,46	0.32	0.42	0.40	0.36	0.32	0.48	0.48	0.36	0.40	0.42	0.38	0.42	0.42	0.44	0.50	0:30	0.40	0.34
	CRACK	LENGTH (in.) A	1.012	1.005	1.013	0.990	1.400	1.004	1.004	1.013	0.989	1.499	1.609	1.012	1.016	0.999	0.980	1.016	1.009	0.980	1.024	1.012	1.007	1.009
4 K _{Ie}	z	DEBIGN	CT	CT	CT	CT	cr	CT	CT	CT	СT	CT	CT	CT	CT	cr	CT	CT	СT	cr	CT	CT	СT	CJ.
2124	SPECIMEN	THICK (in.) B	0.999	1.000	1.000	1.000	1.000	1.000	0.999	1.001	966.0	1.500	1.500	1.001	1.001	1.000	1.000	0.987	1.001	1.000	1.000	1.000	1.001	1.000
ALUMINUM	82	WIDTH (in.) W	1.984	2.010	2.000	1,980	2.000	2.008	1.998	1.986	2.018	2.998	3.018	2.024	1.992	1.998	2.000	1.990	1.978	2.000	2.008	2.024	2.014	2.018
ALU		YIELD STR (Kel)	59.1	69.1	59.1	59.1	1.69	59.1	59.2	59.2	59.2	59.2	69.2	59.2	59.3	69.3	59.3	59.3	59.3	69.3	59.3	59.3	69.3	69.4
		SPEC					1		-				3-5	Cont'd		***************************************								
		TEST TEMP (°F)											R.T.	Cont'd										
	UCT	THICK (In.)	6.00	5.00	2.75	5.50	6.50	6.50	3.12	6.00	3.12	4.50	4.50	9.00	2.00	6.50	4.00	4.25	6.00	4.00	6.50	4.25	2.00	6.50
	PRODUCT	FORM				•							Plate	Cont'd										
		CONDITION											T861	Cont'd										

					ALU	ALUMINUM	4 2124	14 K _{Io}							
	PROI	PRODUCT	-	-		oz.	SPECIMEN	Z	CRACK			K _{Ie}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YTELD STR (Kat)	WIDTH (in.) W	THICK (in.) B	DEBIGN	LENGTH (in.) A	2.5 * (K _{t./} TYS)* (in.)	K. (Kaivin.)	K. MBAN	STAN DEV	DATE	REFER
		4.25			59.4	1.998	1.000	CT	0.999	0.40	23.90			1978	MPC01
		4.25		t	59.4	1.994	1.000	cr	1.017	0.38	23.70			1978	MPC01
		3.12			59.4	2.000	0.992	CT	1.000	0:30	21.20			1978	MPC01
·		2.50			59.4	2.000	1.001	cr	1.018	0.35	22.50			1978	RA002
		4.25			59.4	1.994	1.001	£	0.997	0.50	27.20			1978	MPC01
		1.76			59.4	1.002	0.499	CŢ	0.511	0.30	20.70			1980	RA001
		4.25			59.5	1.990	1.000	CT	1.015	0.48	26.30			1978	MPC01
		5.50			59.5	2,006	1.000	CT	1.003	0.36	22.70	·		1978	MPC01
		3.00			69.5	2.000	0.999	CT	1.000	0:30	21.00	,		1978	MPC01
		5.25			59.5	3.012	1.500	CT	1.506	0.42	24.50	,		1978	MPC01
T861	Plate	4.31	R.T.	S.L	59.6	2.000	1.000	CT	0.970	0.42	24.50			1972	84368
Cont'd	Cont'd	5.50	Cont'd	Cont'd	59.6	1.977	1.000	СŢ	1.008	0.40	24.30	Cont'd	Cont'd	1978	MPC01
		6.50			69.6	1.986	1.000	CŢ	1.013	0.32	21.80			1978	MPC01
		5.50			69.6	2.010	1.000	CT	1.005	0.34	22.50			1978	MPC01
No. of the last of		4.31			9.69	2.000	1.000	CT	0.950	0.41	24.10	- ,		1972	84368
		3.00			9.69	1.997	0.998	cr	0.999	0.26	19.50			1978	RA001
		4.25			69.7	2.014	1.002	CT	1.007	0.44	25.30			1978	MPC01
		3.50			59.7	2.004	0.995	CT	0.999	0.27	19.70			1980	RA001
		2.00			59.7	1.500	0.749	CT	0.756	0.38	23.29			1980	RA001
		6.50			8.63	2.012	1.000	CT	1.006	0.34	22.50	1		1978	MPC01
		3.50			69.8	1.998	0.998	CT	1.001	0.32	21.70			1979	RA001
		3.25			8.63	1.989	0.999	C.	1.064	0.30	21.20			1978	MPC01

CONDITION FRODUCT TREST FREAD FREA						ALU	ALUMINUM	1 2124	24 K _{Io}							,
FORM		PROI	UCT				32 	PECIME	Z	CRACK			K _{Io}		·	
450 Feb Feb Feb Feb Feb Tep Time CT 1500 CT <td>CONDITION</td> <td>FORM</td> <td>THICK (in.)</td> <td>TEST TEMP (°F)</td> <td>SPEC</td> <td>YTELD STR (Kat)</td> <td>WIDTH (in.) W</td> <td>THICK (in.)</td> <td>DESIGN</td> <td>LENGTH (in.) A</td> <td>3.5 • (K_{L,}TYS)* (in.)</td> <td>K. (Kelvin.)</td> <td>K. MEAN</td> <td>BTAN</td> <td>DATE</td> <td>REFER</td>	CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YTELD STR (Kat)	WIDTH (in.) W	THICK (in.)	DESIGN	LENGTH (in.) A	3.5 • (K _{L,} TYS)* (in.)	K. (Kelvin.)	K. MEAN	BTAN	DATE	REFER
1450 450 1500			6.50			59.8	1.987	1.000	CT	1.033	0.28	20.50			1978	MPC01
1500 1500 1500 1500 1500 1700 1500			4.50	•		69.8	3.000	1.500	CT	1.530	0.36	22.70			1972	84368
Signature Sign			4.60			69.8	3.000	1.500	CT	1.520	0.35	22.50			1972	84368
1.00			3.54	·········		69.8	2.014	1.000	CT	1.007	0.34	22.30			1978	MPC01
1.00 1.00			5.00			69.8	2.010	1.000	СT	1.005	0.36	23.10			1978	MPC01
March Sub			4.25			6.69	1.994	1,000	cr	1.017	0.27	20.30			1978	MPC01
250 R.T. 659 1.488 0.744 CT 0.760 0.26 19.60 F 19.60 P 19.60 P 19.60 P 19.60 P 19.60 P P 19.60 P P 19.60 P P 19.60 P			2:00		·	6.69	1.502	0.751	cr	0.751	0.22	18.40			1978	MPC01
Phate 350 RT, SM, SM, Cont. 4.50 59.9 1.000 CT 0.990 0.27 19.80 1972 1978 1972 1978 1972 1978 1972 1978 1972 1978 1978 1972 1978 <			2.50			6.63	1.498	0.744	CT	092.0	0.26	19.60			1980	RA001
Plate Contided 4.500 R.T. Contided 4.500 Cart Mark Louged 1.000 CT 0.990 0.27 19.800 Contided 4.50			3.00			6.69	2.006	1.001	CT	1.003	0.27	19.80		-	1978	MPC01
Contd 4.50 R.T. 5L 65.9 2.000 1.000 CT 0.990 0.32 21.40 Contd 1872 Contd 4.50 Contd 65.9 1.998 1.500 CT 1.499 0.49 26.0 1.978 1878 2.00 2.00 1.988 1.000 CT 0.999 0.28 20.40 1878 1878 3.00 6.00 1.988 0.998 CT 0.998 0.44 26.70 1878 1878 4.00 6.00 2.003 0.998 CT 0.998 0.44 26.70 1878 1878 4.50 6.01 2.002 0.998 CT 0.998 0.35 22.50 1878 1878 4.50 4.50 6.01 2.002 0.998 CT 1.004 0.38 23.80 1878 1878 2.50 4.50 6.01 2.004 0.998 CT 1.004 0.38 23.80 18			3.50	····		6.63	2.000	1.000	CT	0.990	0.27	19.80			1972	84368
Cont4 4.60 Cont4 CT 1.499 0.48 0.48 0.48 Cont4 Cont7 1.598 1.500 CT 1.499 0.28 26.50 Cont7 Cont7 0.599 CT 0.499 CT 0.999 CT 0.999 CT 0.996 CT 0.998 CT 0.998 CT 0.998 CT 0.998 CT 0.999 CT 0.999 CT 0.999 CT 0.999 CT 0.998 CT 0.998 CT 0.998 CT 0.999 CT <td>1861</td> <td>Plate</td> <td>3.50</td> <td>R.T.</td> <td>36</td> <td>6.63</td> <td>2.000</td> <td>1.000</td> <td>CT</td> <td>0.990</td> <td>0.32</td> <td>21.40</td> <td></td> <td></td> <td>1972</td> <td>84368</td>	1861	Plate	3.50	R.T.	36	6.63	2.000	1.000	CT	0.990	0.32	21.40			1972	84368
60.0 1.986 1.000 CT 0.989 0.28 20.40 1978 60.0 1.986 0.998 CT 0.974 0.30 21.00 1978 60.1 2.003 0.996 CT 1.004 0.39 23.70 1980 60.1 2.002 0.998 CT 0.998 0.44 25.70 1978 60.1 2.002 0.998 CT 0.998 0.35 23.60 1978 60.1 3.008 1.501 CT 1.002 0.42 24.80 1978 60.1 1.967 0.998 CT 1.019 0.36 23.40 1978 60.1 1.967 0.998 CT 1.019 0.36 23.40 1978 60.2 2.010 0.996 CT 1.005 0.32 22.00 1978 60.2 2.010 0.996 CT 1.464 0.42 24.70 1978	Cont'd	Cont'd	4.50	Cont'd	Cont'd	6.69	2.998	1.500	cr	1.499	0.48	26.50	Cont'd	Cont'd	1978	MPC01
60.0 1.988 CT 0.974 0.39 21.00 1978 60.1 2.003 0.986 CT 1.004 0.39 23.70 1978 60.1 1.996 0.989 CT 0.998 0.44 25.70 1978 60.1 2.002 0.998 CT 0.998 0.35 23.60 1978 60.1 2.004 0.998 CT 1.002 0.42 24.80 1978 60.1 1.967 0.998 CT 1.019 0.36 23.40 1978 60.2 2.010 0.996 CT 1.005 0.35 22.00 1978 60.2 2.010 0.996 CT 1.404 0.42 24.70 1978 60.2 2.010 0.996 CT 1.404 0.42 22.00 1978 60.2 2.010 0.996 CT 1.404 0.42 24.70 1978			6.50			0.09	1.998	1.000	cr	0.999	0.28	20.40			1978	MPC01
60.0 2.003 0.996 CT 1.004 0.39 23.70 1980 60.1 1.966 0.999 CT 0.998 0.44 25.70 1980 60.1 2.002 0.998 CT 0.998 0.35 22.60 1980 60.1 3.008 1.601 CT 1.604 0.38 23.80 1978 60.1 2.004 0.998 CT 1.019 0.36 23.40 1978 60.2 2.010 0.996 CT 1.019 0.36 22.00 1978 60.2 2.010 0.996 CT 1.019 0.36 22.00 1978 60.2 2.010 0.996 CT 1.046 0.32 22.00 1978 60.2 2.010 0.996 CT 1.464 0.42 24.70 1978			2.90			60.0	1.988	0.998	CT	0.974	0:30	21.00			1978	MPC01
60.1 1.986 0.899 CT 0.988 0.44 25.70 1978 60.1 2.002 0.998 CT 0.998 0.35 22.60 1978 60.1 3.008 1.501 CT 1.504 0.38 23.80 1978 60.1 2.004 0.998 CT 1.002 0.42 24.80 1978 60.1 1.967 0.998 CT 1.019 0.36 23.40 1978 60.2 2.010 0.996 CT 1.006 0.32 22.00 1978 60.2 3.029 1.500 CT 1.464 0.42 24.70 1978			3.00			0.09	2.003	0.995	CI	1.004	0.39	23.70			1980	RA001
60.1 2.002 0.998 CT 0.998 0.35 22.60 1980 60.1 3.006 1.501 CT 1.604 0.38 23.80 1978 60.1 2.004 0.998 CT 1.002 0.42 24.80 1978 60.2 2.010 0.996 CT 1.019 0.36 23.40 1978 60.2 2.010 0.996 CT 1.005 0.32 22.00 1978 60.2 3.029 1.500 CT 1.464 0.42 24.70 1978			6.00			60.1	1.996	0.999	CT	0.998	0.44	25.70			1978	MPC01
60.1 3.006 1.601 CT 1.604 0.38 23.80 1978 60.1 2.004 0.998 CT 1.002 0.42 24.80 1978 60.1 1.967 0.998 CT 1.019 0.36 23.40 1978 60.2 2.010 0.996 CT 1.006 0.32 22.00 1978 60.2 3.029 1.600 CT 1.484 0.42 24.70 1978			4.00			60.1	2.002	0.998	CT	0.998	0.35	22.60			1980	RA001
60.1 2.004 0.988 CT 1.002 0.42 24.80 1978 60.1 1.867 0.989 CT 1.019 0.36 23.40 1976 60.2 2.010 0.996 CT 1.006 0.32 22.00 1978 60.2 3.029 1.500 CT 1.484 0.42 24.70 1978			4.50			60.1	3.008	1.501	СŢ	1.504	0.38	23.80			1978	MPC01
60.1 1.867 0.998 CT 1.019 0.36 23.40 1978 60.2 2.010 0.996 CT 1.005 0.32 22.00 1978 60.2 3.029 1.600 CT 1.484 0.42 24.70 1978			3.54		•	60.1	2.004	966.0	CT	1.002	0.42	24.80			1978	MPC01
60.2 2.010 0.996 CT 1.005 0.32 22.00 1978 60.2 3.029 1.500 CT 1.484 0.42 24.70 1978			3.12		-	60.1	1.967	0.998	CT	1.019	0.36	23.40			1978	MPC01
60.2 3.029 1.500 CT 1.484 0.42 24.70 1978			2.50			60.2	2.010	966'0	CT	1.005	0.32	22.00			1978	MPC01
			4.50			60.2	3.029	1.500	CT	1.484	0.42	24.70			1978	MPC01

KIELD BTR (In.) WIDTH (In.) THICK (In.) DB8IGN BB 60.2 1.386 1.000 CT 60.2 2.016 1.000 CT 60.2 3.000 1.500 CT 60.2 3.000 1.500 CT 60.6 2.014 0.999 CT 60.6 2.004 0.999 CT 60.6 2.004 0.999 CT 60.6 2.004 0.999 CT 60.6 2.004 0.999 CT 60.6 1.999 0.998 CT 60.6 1.999 0.999 CT 60.6 1.999 0.999 CT 60.6 1.999 0.999 CT 60.6 2.992 1.600 CT 60.7 1.998 0.599 CT 60.7 1.998 0.699 CT 60.7 1.998 0.699 CT 60.8 1.999 0.999 <td< th=""><th>- #</th><th>ALU</th><th>ALUMINUM</th><th>2124</th><th>I K_{to}</th><th></th><th></th><th></th><th>;</th><th></th><th></th><th></th></td<>	- #	ALU	ALUMINUM	2124	I K _{to}				;			
SPEC (Kai) (In.) (In.) (In.) (In.) (Kai) (Kai) (Kai) (In.) (S	SPECIMEN		CRACK			\mathbf{K}_{l_0}		-	
60.2 1.986 1.000 0 60.2 2.016 1.000 0 60.2 3.000 1.500 0 60.2 3.000 1.500 0 60.4 1.999 0.999 0 60.6 2.014 0.999 0 60.6 2.004 0.999 0 60.6 2.004 0.999 0 60.6 2.004 0.999 0 60.6 2.004 0.999 0 60.6 2.004 0.999 0 60.6 2.004 0.999 0 60.7 2.016 1.000 0 60.7 1.998 0.997 0 60.7 1.998 0.999 0 60.7 1.992 0.999 0 60.8 1.997 0.999 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0	TEMP SPEC (°F) OR		WIDTH (in.) W	THICK (fn.)			2.6 (K.,,178)- (in.)	K. (Kel√in.)	K. MBAN	STAN	DATE	REFER
60.2 2.016 1.000 C 60.2 3.000 1.500 C 60.2 3.000 1.500 C 60.4 1.999 0.999 C 60.6 2.014 0.999 C 60.6 2.004 0.999 C 60.6 2.004 0.999 C 60.6 2.004 0.998 C 60.6 2.004 0.998 C 60.6 2.992 1.000 C 60.6 2.992 1.000 C 60.7 2.016 1.000 C 60.7 2.016 1.000 C 60.7 1.998 0.997 C 60.7 1.998 0.998 C 60.7 1.998 0.997 C 60.7 1.998 0.998 C 60.7 1.998 0.997 C 60.7 1.998 0.998 C 60.7 1.998 0.997 C 60.8 1.997 0.998 C		60.2	1.986	1.000	ĘŢ.	1.013	0.32	21.70			1978	MPC01
60.2 3.000 1.500 0 60.2 3.000 1.500 0 60.4 1.999 0.999 0 60.6 2.014 0.999 0 60.6 2.004 0.999 0 60.6 1.999 0.999 0 60.6 1.999 0.999 0 60.6 2.004 0.999 0 60.6 2.004 0.999 0 60.7 2.016 1.000 0 60.7 1.999 0.997 0 60.7 1.998 0.997 0 60.7 1.998 0.997 0 60.7 1.998 0.997 0 60.7 1.992 0.999 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0 60.8 1.997 0.998 0 60.8 1.996 0.999 0		60.2	2.016	1.000	CT	1.008	0.24	19.00			1978	MPC01
60.4 1.999 0.999 6 60.6 2.014 0.999 6 60.6 2.014 0.999 6 60.6 2.004 0.999 6 60.6 2.004 0.999 6 60.6 2.004 0.998 6 60.6 2.992 1.000 6 60.6 2.992 1.600 6 60.7 2.016 1.000 6 60.7 2.016 1.000 6 60.7 1.999 0.998 6 60.7 1.999 0.998 6 60.7 1.999 0.998 6 60.7 1.999 0.998 6 60.7 1.998 0.997 6 60.7 1.998 0.997 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6		60.2	3.000	1.500	CT	1.540	0.27	20.00			1972	84368
60.6 2.014 0.999 60.66 60.6 1.896 0.999 60.66 1.896 0.999 60.66 1.896 0.999 60.66 1.999 1.000 60.6 1.999 0.999 60.6 2.004 0.999 60.6 2.004 0.996 60.6 2.992 1.500 60.7 2.016 1.000 60.7 1.998 0.997 60.7 0.986 0.602 60.7 1.992 0.999 60.8 1.997 0.998 60.8 1.997 0.998 60.8 1.996 0.999 60.8 1.996 0.999 60.8 1.996 0.999		60.2	3.000	1.500	CT	1.560	0.27	19.90			1972	84368
60.6 2.014 0.999 60.66 1.996 0.999 60.66 2.004 0.999 60.66 2.004 0.999 60.66 2.004 0.998 60.6 2.004 0.998 60.6 2.004 0.998 60.6 2.992 1.600 60.7 2.016 1.000 60.7 0.998 0.999 60.7 0.998 60.7 0.998 60.7 0.998 60.8 1.997 0.998 60.8 2.016 1.000 60.8 1.997 0.999 60.8 1.997 0.999 60.8 1.997 0.999 60.8 1.997 0.999	A -1	60.4	1.999	0.999	CT	1.096	0.28	20.40			1978	RA002
60.6 2.004 0.999 60.6 2.004 0.999 60.6 2.004 0.999 60.6 2.004 0.999 60.6 2.004 0.996 60.6 1.999 1.000 60.6 2.992 1.500 60.6 2.992 1.500 60.7 2.016 1.000 60.7 0.986 0.999 60.7 1.992 0.999 60.8 1.997 0.998 60.8 1.997 0.998 60.8 1.996 0.999 60.8 1.996 0.999		60.5	2.014	0.999	CT	1.007	0.34	22.60			1978	MPC01
60.6 2.004 0.899 6 60.6 2.004 0.899 6 60.6 1.999 1.000 6 8-L 60.6 2.004 0.998 6 60.6 2.992 1.600 6 60.7 2.016 1.000 6 60.7 1.998 0.897 6 60.7 1.998 0.897 6 60.7 1.998 0.897 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6 60.8 1.997 0.998 6 60.8 1.996 0.999 6		9.09	1.996	0.999	CT	1.018	0.34	23.00			1978	MPC01
60.6 2.004 0.899 6.06 1.899 1.000 6.00 1.890 1.000 6.00 1.890 1.000 6.00 1.890 1.800 6.00 6.00 1.890 6.090 6.00 6.00 1.890 6.00 6.00 6.00 6.00 6.00 6.00 6.00 6.		9.09	2.004	0.999	CT	1.002	0:30	21.70			1978	MPC01
S.L. 60.6 2.004 0.996 Cont'd 60.6 2.004 0.996 60.6 1.999 0.998 60.6 2.992 1.500 60.7 2.016 1.000 60.7 1.998 0.999 60.7 1.992 0.999 60.8 1.997 0.998 60.8 1.997 0.998 60.8 1.997 0.998 60.8 1.997 0.998 60.8 1.997 0.998 60.8 1.997 0.998	·	9.09	2.004	0.999	СŢ	1.022	0.36	23.10			1978	MPC01
S-L 60.6 2.004 0.996 Courtd 60.6 1.999 0.998 60.6 2.992 1.501 60.7 2.016 1.000 60.7 1.998 0.997 60.7 1.992 0.999 60.8 1.997 0.999 60.8 1.997 0.999 60.8 1.996 0.999 60.8 1.996 0.999		9'09	1.999	1.000	CI	0.963	0.29	20.70			1978	RA002
Cont'd 60.6 1.999 0.998 60.6 3.026 1.501 60.6 60.7 2.016 1.000 60.7 1.998 0.997 60.7 0.986 0.502 60.7 1.992 0.999 60.8 1.997 0.998 60.8 1.997 0.998 60.8 1.997 0.998			2.004	966.0	CT	0.998	0.29	20.90			1980	RA001
3.026 1.601 2.992 1.600 2.016 1.000 1.998 0.999 1.997 0.998 1.997 0.998 1.996 0.999			1.999	0.998	CT	0.991	0.27	20.00	Cont'd	Cont'd	1980	RA001
2.992 1.600 2.016 1.000 1.998 0.997 0.986 0.602 1.992 0.999 1.997 0.998 2.016 1.000		9.09	3.026	1.601	ÇŢ	1.613	0.38	23.70			1978	MPC01
2.016 1.000 1.998 0.997 0.986 0.502 1.992 0.999 1.997 0.998 2.016 1.000 1.996 0.999		9.09	2.992	1.500	CT	1.526	0.36	23.20			1978	MPC01
1.998 0.997 0.986 0.502 1.992 0.999 1.997 0.998 2.016 1.000		60.7	2.016	1.000	CI	1.008	0.28	21.20			1978	MPC01
0.866 0.502 1.892 0.899 1.997 0.898 2.016 1.000 1.996 0.899	<u> </u>	60.7	1.998	0.997	CT	1.039	0.30	21.60			1978	MPC01
1.992 0.999 1.997 0.998 2.016 1.000 1.996 0.999		60.7	0.986	0.502	CT	0.498	0.22	18.10			1978	RA002
2.016 1.000 1.996 0.999		60.7	1.992	0.999	СT	1.019	0.24	19.20	-		1978	MPC01
2.016 1.000		8.09	1.997	0.998	CT	1.020	0.30	21.40			1978	RA001
1.996 0.999		60.8	2.016	1.000	CT	1.008	0.25	20.00			1978	MPC01
		60.8	1.996	0.999	CT	6.979	0.25	19.50			1980	RA001
60.9 2.006 1.001 CT		60.9	2.006	1.001	CT	1.023	0.27	20.20			1978	MPC01

						ALUMINUM	2124	4 K _{Ie}							
	PROI	PRODUCT				on a	SPECIMEN	Z	CRACK			K			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (in.)	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 • (K _{z.,} TYS)³ (in.)	K. (Kalvin.)	K. MBAN	STAN	DATE	REFER
		3.62			609	3.014	1.499	cr	1.567	0.28	20.80			1978	MPC01
		4.25			6.09	1.984	1.000	CT	1.012	0:30	21.70			1978	MPC01
		3.50			6.09	2.016	0.997	cr	1.008	0.34	22.70	-		1978	MPC01
		3.00			6:09	2.000	1.000	CT	0.991	0.31	21.70			1978	RA002
		6.50			6.09	2.004	1.000	CT	1.002	0.27	20.30			1978	MPC01
		2.50	···········		60.9	2.006	0.998	CT	1.003	0.28	21.30			1978	MPC01
		4.00			6.09	1.997	0.999	CT	1.002	0.36	23.20			1978	RA001
		2.00			61.0	1.498	0.751	CT	0.756	0.29	21.10			1978	RA002
		6.60			61.1	2.014	1.003	cr	1.007	0.32	22.30			1978	MPC01
		4.25			61.1	1.996	1.001	CT	0.998	96.0	23.50			1978	MPC01
T851	Plate	3.50	R.T.	3-I	61.1	1.998	0.999	CT	1.022	0.33	22.20			1978	RA001
Cont'd	Cont'd	1.62	Cont'd	Cont'd	61.2	0.986	0.503	CT	0.480	0.24	19.10	Cont'd	Cont'd	1978	RA002
		3.00			61.2	1.996	0.998	CT	1.018	0.26	19.70			1978	MPC01
		3.00			61.2	2.000	0.999	CT	0.980	0.28	20.79			1980	RA001
		3.76			61.3	3.016	1.499	cr	1.538	0.30	21.90			1978	MPC01
		2.50			61.3	1.499	0.745	CT	0.750	0.24	19.29			1980	RA001
		6.50			61.4	1.986	1.003	CT	1.013	9.34	23.00			1978	MPC01
		3.50			61.4	2.000	1.000	Ç	0.990	0.43	25.40			1972	84368
		2.50			61.4	2.000	1.000	СŢ	1.100	0.27	20.80			1978	MPC01
		2.00			61.4	0.997	0.498	CT	0.504	0.25	19.60			1978	RA001
		3.50			61.4	2.000	1.000	CT	0.990	0.41	24.70			1972	84368
		4.90		***	61.4	3.000	1.600	CT	1.585	0.36	23.40			1978	RA002

					ALU	ALUMINUM	2124	74 K _{Io}							
	PRODUCT	UCT				32	SPECIMEN	Z	CRACK			K _{Io}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (In.) W	THICK (in.)	DESIGN	LENGTH (in.) A	2.6 • (K _{t.,} TYS) ² (in.)	K. (Krivin.)	K. MBAN	STAN DRV	DATE	REFER
		4.00		1	61.5	3.000	1.500	CT	1.530	0:30	21.70			1978	MPC01
		1.75			61.6	0.998	0.503	СŢ	0.520	0.21	17.90			1980	RA001
	•	3.00			61.6	2.000	1.001	CT	1.012	0.22	18.50			1978	RA002
		4.90			61.6	3.000	1.499	cr	1.592	0.35	23.10			1978	RA002
		6.50			61.6	1.986	1.000	CT	1.013	0.38	24.30			1978	MPC01
		2.35		1	61.7	1.602	0.750	CŢ	0.763	0.33	22.50			1980	RA001
		1.73			61.7	1.004	0.497	CT	0.642	0.21	18.40			1978	MPC01
		3.12		<u>'</u>	61.7	2.002	0.998	CT	0.996	0.29	21.29			1980	RA001
		3.00			61.8	1.999	0.994	СT	1.000	0.23	19.10			1980	RA001
		3.00			61.8	1.980	0.999	CT	1.010	0.27	20.80	,		1978	MPC01
T851	Plate	2.00	R.T.	18	61.9	1.498	0.749	СŢ	0.794	0.25	20.10			1978	MPC01
Cont'd	Cont'd	4.75	Cont'd	Cont'd	62.0	2.004	1.000	CT	1.002	0.26	20.40	Cont'd	Cont'd	1978	MPC01
		2.50			62.0	1.984	0.998	CT	1.012	0.24	19.70			1978	MPC01
		2.25			62.0	0.998	0.499	CT	0.539	0.24	19.80			1978	MPC01
		3.00			62.0	2.010	1.001	CT	1.005	0.27	20.80			1978	MPC01
		3.00			62.0	1.995	0.998	CT	096'0	0:30	21.60			1980	RA001
		3.00			62.0	1.997	0.999	CT	1.007	0.24	19.40			1979	RA001
		2.50		•	62.0	1.499	0.744	CT	0.741	0.23	18.90			1980	RA001
		5.50			62.1	2.001	1.000	CI	1.006	0.30	22.00			1978	MPC01
		2.50			62.1	2.000	1.000	C.	1.020	0.40	25.30			1978	MPC01
		2.50			62.1	2.000	1.00	CI	0.940	0.31	21.80			1972	84368
		3.00			62.1	1.997	0.998	CT	1.022	0.29	21.50			1979	RA001

		REFER	84368	MPC01	RA001	MPC01	MPC01	MPC01	RA001	RA002	MPC01	RA001	MPC01	RA001	MPC01	MPC01	RA002	RA002	MPC01	MPC01	MPC01	84368	84368	RA001
		DATE	1972	1978	1980	1978	1978	1978	1980	1978	1978	1980	1978	1980	1978	1978	1978	1978	1978	1978	1978	1972	1972	1980
		STAN					L		,,					Cont'd										
	K _{Io}	K. MEAN				•								Cont'd										
		K. (Kalvin.)	22.90	24.50	21.50	23.10	20.20	21.50	22.20	18.10	23.10	21.60	22.40	22.79	19.60	21.60	22.29	21.10	22.10	22.10	19.20	18.10	17.60	18.70
		2.5 * (K _w ,TYS)* (in.)	0.34	0.38	0.29	0.34	0.25	0.28	0.31	0.21	0.34	0:30	0.30	0.33	0.24	0.28	0.31	0.28	0.30	0.30	0.22	0.21	0.20	0.22
	CRACK	LENGTH (ln.) A	0.960	1.019	0.995	0.508	0.774	1.014	1.004	0.503	0.509	0.768	1.017	0.755	1.020	1.000	0.475	0.979	1.000	0.990	0.771	0.730	0.730	97.10
4 K _{Io}	7	DESIGN	CJ.	CT	CT	CT	CT	СŢ	cr	CT	CT	СТ	CT	CT	CT	CT	cr	Ç	CT	CT	Ę.	CT	CT	CI
2124	SPECIMEN	THICK (in.)	1.000	1.000	0.998	0.501	0.746	1.00.1	966.0	0.500	0.501	0.750	1.001	0.746	1.001	1.000	0.500	1.001	1.000	0.998	0.751	0.750	0.750	0.751
ALUMINUM	[S]	WIDTH (In.)	2.000	1.998	2.003	966.0	1.489	1.988	2.004	1.000	0.998	1.502	1.994	1.499	2.000	2.000	0.979	2.000	2.000	2.020	1.512	1.500	1.500	1.500
ALU		YIELD STR (Kei)	62.1	62.1	62.1	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.4	62.4	62.5	62.6	62.6	62.6	62.6	62.6	62.6	62.7	62.7	62.7
		SPEC											S.I.	Cont'd										
		TEST TEMP (°F)											R.T.	Cont'd										
	PRODUCT	THICK (in.)	2.60	2.50	3.00	1.60	2.00	2.75	2.75	1.76	1.60	2.60	4.76	2.76	2.50	5.50	1.76	2.50	5.50	2.60	2.00	2.04	2.04	2.50
	PROI	FORM											Plate	Cont'd										
		CONDITION											T851	Cont'd										

DATE	+			MPC	MPC01 MPC01 MPC01 MPC01 MPC01 MPC0 MPC0 MPC0 MPC0 MPC0 MPC0 MPC0 MPC0	MPC01	MPC01
<u>L</u>	1978	1978 1978 1978 1978	1978 1978 1978 1978 1972 1972	1978 1978 1978 1978 1972 1972 1978 1978 1978	1978 1978 1978 1978 1972 1978 1978 1978 1978 1978 1978	1978 1978 1978 1978 1972 1972 1978 1978 1978 1978 1978	1978 1978 1978 1978 1972 1972 1978 1978 1978 1978 1978 1978
Kt, STAN			, Cont'd				
21.40	18.50	20.60 21.50 22.60 24.10	20.60 21.50 22.60 24.10 21.20 17.10 22.80 Contd				
0.28 21.00 0.32 23.00 0.28 21.40	0.21						
0.738	785	0.774	0.774 0.774 1.046 0.763 0.830 0.830 0.533	0.791 0.774 1.048 0.763 0.830 0.621 0.621 0.631	0.791 0.774 1.048 0.530 0.530 0.621 0.621 0.610 0.490 0.749	0.774 1.048 0.763 0.830 0.531 0.531 0.531 0.631 0.749 1.017 0.509	0.774 1.048 0.763 0.830 0.621 0.621 0.633 0.634 0.749 0.749 0.969 0.969
5 5 5	Ę	5 5 5 5					
0.747 0.750 0.498	_	0.749 0.748 0.749 0.750	0.748 0.748 0.749 1.000 1.000 1.000 0.496	0.748 0.749 1.001 1.000 1.000 0.496 0.500 0.500 0.500	0.748 0.748 0.749 1.001 1.000 1.000 0.496 0.500 0.500 0.500 0.747 1.001	0.748 0.748 0.748 0.748 1.001 1.000 1.000 1.000 0.500 0.500 0.500 0.500 0.500 0.600 0.600 0.600 0.600	0.748 0.748 0.748 0.748 1.001 1.000 1.000 0.496 0.500 0.500 0.747 1.001 1.000 1.000
1.500 1.471 1.008		1.510 1.493 1.489 2.015	1.510 1.489 1.489 2.016 2.000 2.000 1.006	1.510 1.489 1.486 1.486 2.000 2.000 1.006 1.002 1.000	1.510 1.489 2.015 2.000 2.000 2.000 1.002 1.002 1.000 1.000 1.000 1.000 1.000	1.510 1.489 1.489 2.015 2.000 2.000 1.000 1.000 1.000 1.994 0.998	1.510 1.489 1.489 2.015 2.000 2.000 1.002 1.000 1.000 1.894 0.988 2.000 2.000 2.000
62.8	8.69	62.8					
			Gont'd				
	<u> </u>		Cont'd	Cont'd	Cont'd		
1.50	2.25	3.00					
			Plate Cont'd	Plate	Plate	Plate Cont'd	Plate Cont'd
				961 ont'd		T861	Cont'd

					ALU	ALUMINUM	1 2124	24 K _{Ie}							
1	PRODUCT	UCT				92 	SPECIMEN	Z	CRACK			$\mathbf{K}_{\mathbf{I}_{\mathbf{G}}}$			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	1	2.6 * (K _{ee} TYS)* (In.)	K. (Keivin.)	K. MRAN	STAN DRV	DATE	REFER
		1.66		L	63.6	1.000	0.498	CT	0.540	0.28	22.10			1978	MPC01
		1.75			63.6	1.010	0.499	СŢ	0.525	0.18	17.50			1978	MPC01
	. 1	2.50			63.7	2.000	0.998	CT	0.960	0.27	21.20			1978	MPC01
		2.36			63.9	0.998	0.498	CT	0.539	0.18	17.40			1978	MPC01
		1.50			63.9	0.999	0.501	CT	0.487	0.27	21.00			1980	RA001
		2.00			64.1	1.502	0.751	CT	0.766	0.28	22.00			1978	MPC01
		3.12			64.2	2.006	0.999	CT	1.003	0.24	20.50			1978	MPC01
		2.75			64.3	1.499	0.752	CT	0.767	0.29	21.90			1978	RA002
		1.56			64.3	1.000	0.497	CT	0.540	0.28	21.90			1978	MPC01
	•	1.57			64.4	1.000	0.500	CT	0.490	0.27	21.30			1972	84368
	Plate	1.67	R.T.	S.L	64.4	1.000	0.500	ст	0.500	0.25	20.50			1972	84368
	Cont'd	2.50	Cont'd	Cont'd	64.4	2.000	0.998	CT	0.964	0.26	20.90	Cont'd	Cont'd	1978	RA002
		2.50			64.4	1.499	0.745	cT	0.754	0.17	17.20			1980	RA001
 		2.00			64.5	1.518	0.751	CT	0.774	0.25	20.70			1978	MPC01
		1.75			64.5	1.012	0.501	CT	0.526	0.19	18.30			1978	MPC01
		2.00		•	64.6	1.499	0.751	CT	0.793	0.19	18.00			1978	RA002
		1.75	•		64.8	0.979	0.502	CT	0.509	0.24	20.10			1978	RA002
		2.50			64.8	2.002	0.998	СТ	1.021	0.18	18.00			1978	MPC01
		2.00		•	64.8	1.504	0.751	CT	0.782	0.22	20.00			1978	MPC01
		2.00			64.8	1.498	0.746	CT	0.746	0.18	17.79			1980	RA001
		2.25			64.9	1.489	0.749	CT	0.774	0.19	18.30			1978	MPC01
		2.00			64.9	1.491	0.750	CT	0.805	0.22	20.10			1978	MPC01

	ŀ	ŀ		ALU	ALUMINUM	2124	4 K _{Ic}							
ارت	PRODUCT	·-			SC	SPECIMEN	z	CRACK			$\mathbf{K}_{\mathbf{I}^{\mathbf{c}}}$		•	
E .	THICK T (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kal)	WIDTH (in.)	THICK (in.)	DESIGN	LENGTH (in.) A	2.5 * (K _{t.,} TYB)* (in.)	K. (Keivin.)	K,	BTAN	DATE	REFER
ŀ	2:00	•	!	64.9	1.500	0.750	CT	0.740	0.22	19.20			1972	84368
- 1	2.00		1	64.9	1.500	0.750	CT	0.740	0.22	19.10			1972	84368
	1.73			65.0	0.986	0.502	CT	0.467	0.26	21.10			1978	RA002
	1.76			65.2	0.998	0.500	CT	0.495	0.18	17.50			1980	RA001
- 1	1.75			65.2	1.000	0.500	Ç	0.500	0.17	17.29			1978	RA001
1	1.75			66.3	1.010	0.605	CT	0.505	0.18	18.10			1978	MPC01
	1.76			65.3	1.000	0.500	CT	0.460	0.19	18.20			1972	84368
- 1	1.76		I	65.3	1.000	0.500	CT	0.490	0.22	19.50			1972	84368
	1.57			65.4	1.000	0.500	CT	0.470	0.21	18.80			1972	84368
- 1	2.25		•	65.5	1.489	0.749	СТ	0.774	0.22	19.90			1978	MPC01
	2.50	R.T. Cont'd	S.L. Cont'd	65.6	2.016	666'0	cr	1.028	0.21	19.60	Cont'd	Cont'd	1978	MPC01
- 1	2.25			65.6	1.504	0.749	CT	0.782	0.25	21.30		-	1978	MPC01
- 1	2.50			65.7	1.991	1.001	CT	1.065	0.24	21.00			1978	MPC01
	1.66			65.8	0.996	0.500	СT	0.528	0.18	18.00			1978	MPC01
l	2.50		.	66.1	1.500	0.749	CT	0.760	0.16	16.79			1979	RA001
	2.62		······	66.3	2.000	1.000	CT	0.970	0.24	20.60			1972	84368
	2.62		•	66.3	2.000	1.000	СT	0.960	0.20	18.80			1972	84368
	1.62			9.99	1,001	0.498	CT	0.475	0.16	16.90			1980	RA001
	1.73			67.2	1.001	0.498	CT	0.619	0.21	19.90			1978	RA002
	1.76			67.4	1.000	0.520	СŢ	0.520	0.15	17.50			1978	MPC01
	1.66			68.1	1.001	0.499	CT.	0.617	0.19	18.79			1979	RA001

					ALU	ALUMINUM	2124	4 K _{Io}							
	PRODUCT	oucr				on on	SPECIMEN	z	CRACK			K _{Ie}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (In.)	THICK (in.) B	DESIGN	LENGTH (id.) A	2.6 * (K _{e,/} TYB)* (in.)	K. (Kelvin.)	K. MBAN	STAN	DATE	REFER
	1	3.50	1		64.4	3.000	1.500	СТ	1.547	0.45	27.40			1973	86213
T851	Plate	3.50	81	7.	64.4	3.000	1.499	CT	1.533	0.53	29.60	28.5	1.6	1973	86213
		3.50			63.7	3.000	1.498	cr	1.601	68:0	25.00			1973	86213
1851	Plate	3.50	 	T:T	63.7	3.000	1.498	CT	1.618	0.37	24.40	24.7	0.4	1973	86213
	1	3.50	;		69.8	2.000	0.998	СТ	0.986	0.35	22.40			1973	86213
1861	Plate	3.50	82	1.5 1.5	59.8	2.000	0.998	CT	0.941	0.33	21.80	22.1	0.4	1973	86213
		3.00	;	;	61.3	2.000	0.999	СТ	0.931	0.38	23.90			1973	86213
T851	Plate	3.00	84	1.6	61.6	2.000	0.999	CT	0.954	0.41	25.00	24.6	9.0	1973	86213
		2.50			56.9	2.000	1.000	cr	:	0.78	31.90			1974	88742
T861	Plate	2.50	250	7.	56.9	2.000	1.000	LO	;	0.88	33.90	33.0	1.0	1974	88742
		2.50			6.99	2.000	1.000	СT	1	0.86	33.30			1974	88742
		2.50			67.3	2.000	1.000	CT	1	0.59	27.70			1974	88742
T861	Plate	2.50	250	T·L	67.3	2.000	1.000	СŢ	:	0.56	26.90	27.2	0.4	1974	88742
		2.50			67.3	2.000	1.000	CT	i	0.56	27.10			1974	88742
	i	2.50	į		55.9	2.000	1.000	CT	Į.	0.46	24.60			1974	88742
1991	Plate	2.50	P63		629	2.000	1.000	CT	:	0.63	26.20	25.4	1.1	1974	88742
	į	4.50	8		76.4	3.000	1.500	CT	1.478	0.44	31.90			1973	86213
1851 (417)	Plate	1.75	0Z£-	3	80.9	3.000	1.500	cr	1.641	0.43	33.50	32.7	1.1	1973	86213
T851 (417)	Plate	1.75	-320	TL	78.1	3.000	1.500	CT	1.648	0.35	29.10	i	!	1973	86213
T851 (417)	Plate	4.50	-320	8-L	72.3	3.000	1.501	CT	1.514	0.23	22.10	i	;	1973	86213
		4.50			67.6	3.000	1.501	CT	1.474	0.43	27.90			1973	86213
T851 (417)	Plate	1.76	-112	3	73.2	3.000	1.499	ದ	1.642	0.41	29.60	28.8	1.2	1973	86213

Ж.	= or	K. STAN DATE REFER	1973 86213	24.4 0.4 1973 86213	1973 86213	1973 86213	1973 86213	1973 86213	1973 86213	1973 86213	1973 86213	1973 86213	1973 86213	1973 86213	1973 86213	28.9 2.8 1973 86213	1973 86213	1973 86213	1973 86213	1973 86213	1973 86213	1973 86213	1973 86213	1973 86213	1973 86213
	1	K. (Ketvin.)	24.10	24.60	21.30	34.30	28.80	28.10	31.90	32.70	26.60	26.70	27.70	31.60	31.50	28.00	27.40	34.20	35.20	24.80	28.70	27.80	26.80	25.00	28.90
		2.5 • (K _{e/} TYS) ¹ (in.)	0.33	0:30	0.27	080	0.56	0.53	0.65	0.68	0.44	0.44	0.46	0.61	0.61	0.48	0.46	0.69	0.73	0.36	0.48	0.45	0.42	96.0	0.48
			1.567	1.623	1.461	0.925	1.495	1.496	0.932	0.941	1.479	1.518	1.536	1.510	1.623	1.581	1.589	1.477	1.526	0.619	1.546	1.536	1.014	0.515	1.632
74 K _{Io}	Z	DESIGN	CT	CT	CT	NB BA	Ç	СŢ	NB NB	NB	ÇŢ	CT	СŢ	СT	СТ	СŢ	CT	CT	CT	CT	СŢ	CI	C.	C.	E E
M 2124	SPECIMEN	THICK (in.) B	1.498	1.500	1.500	1.000	1.501	1.501	1.000	1.000	1.601	1.502	1.500	1.501	1.501	1.501	1.601	1.501	1.500	0.499	1.412	0.999	0.999	0.498	1.412
ALUMINUM		WIDTH (in.) W	3.000	3.000	3.000	2.000	3.000	3.000	2.000	2.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	1.00	3.000	3.000	2.000	1.000	3.000
ALU		YIELD STR (Kal)	0.99	7.0.7	64.8	9.09	61.1	61.1	62.5	62.5	63.1	63.4	63.4	63.9	63.9	64.2	64.2	65.2	66.2	65.4	65.4	66.4	65.4	66.2	66.2
		SPEC	Ë	1	3.F										-	<u> </u>									
		TEST TEMP (°F)	====		-112						1			-	E	<u> </u>				1	······································		 -		
	PRODUCT	THICK (in.)	.53.	1.76	5.50	4.00	2,50	6.50	4.00	4.00	4.50	4.50	4.50	3.50	3.50	1.67	1.67	1.67	1.67	3.00	3.00	3.00	3.00	3.00	3.00
	PRO	FORM	5	Land	Plate										500	g # 									
		CONDITION	T861 (419)	(175) 7007	T851 (417)										717)	(111) 1001									

					ALU	ALUMINUM	[2124	4 K _{Io}							
	PRODUCT					S	SPECIMEN	z	CRACK			K _{Ie}		-	
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIRLD STR (Kel)	WIDTH (in.)	THICK (in.)	DEBIGN	LENGTH (in.) A	2.6 * (K _{k./} TYB)* (in.)	K. (Kelvin.)	K. MEAN	STAN	DATE	REFER
		3.00			66.2	3.000	0.998	cr	1.530	0.48	28.90			1973	86213
		3.00			66.2	2.000	0.998	CT	1.015	0.40	26.50			1973	86213
		1.76			67.0	3.000	1.502	CT	1.583	0.45	28.30			1973	86213
T851 (417) Cont'd	Plate Cont'd	1.76	R.T. Cont'd	Contd	67.0	3.000	1.501	CT	1.672	0.46	28.60	Cont'd	Cont'd	1973	86213
		1.67			67.2	3.000	1.502	cT	1.555	0.39	26.50			1973	86213
		1.57			67.2	3.000	1.602	CT	1.560	0.37	26.00			1973	86213
		1.75			67.6	3.000	1.499	cr	1.631	0.46	29.10			1973	86213
		5.50			69.3	3.000	1.501	L	1.514	0.34	21.80			1973	86213
		6.50		•	69.3	3.000	1.601	CI	1.540	0.35	22.30			1973	86213
		4.00			59.4	2.000	1.001	SB.	0.938	0.49	26.40			1973	86213
		4.50			61.4	3.000	1.501	C.T.	1.523	0.34	22.50			1973	86213
		4.50			61.4	3.000	1.501	СŢ	1.566	98.0	23.30			1973	86213
		4.50			61.5	3.000	1.500	cr	1.482	0.29	21.10			1973	86213
		4.00			62.6	2.000	0.998	NB	0.918	0.40	24.90			1973	86213
T851 (417)	Plate	3.50	R.T.	T.I.	62.7	3.000	1.501	CT	1.546	0.46	26.80	23.8	2.4	1973	86213
		3.50			62.7	3.000	1.501	CT	1.650	0.44	26.40			1973	86213
		3.00			64.4	1.000	0.499	CT	0.525	0.27	21.10			1973	86213
		3.00			64.4	2.000	0.999	CT	0.996	0.26	20.70			1973	86213
		3.00			64.4	3.000	1.412	ಕ	1.653	0.31	22.70			1973	86213
		3.00			64.4	3.000	0.998	IJ	1.520	0.31	22.70			1973	86213
		3.00			64.4	3.000	0.498	CT	1.526	0.31	22.70			1973	86213
		3.00			64.8	3.000	1.412	ದ	1.551	0.29	22.20			1973	86213

																								_
		REFER	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213
		DATE	1973	1973	1973	1973	1973	1973	₹973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973
		STAN							Cont'd											2.0				
	K _{Ie}	K. MEAN				**			Cont'd											21.3				
		K. (Ketvlin.)	22.70	21.80	21.50	22.50	30.30	29.40	24.00	23.90	24.50	24.00	24.00	25.10	25.30	23.60	23.90	24.80	22.70	22.50	20.40	20.70	22.90	21.80
		2.6 * (KTYS)* (in.)	0.31	0.28	0.28	0:30	0.54	0.51	0.33	0.33	0.34	0.32	0.32	0.35	0.35	0.42	0.43	0.44	98'0	0.35	0.29	0.29	0.34	0.31
	CRACK		1.641	0.516	1.034	1.512	1.541	1.522	1.565	1.577	1.643	1.561	1.565	1.691	1.591	1.500	1.466	0.981	1.534	1.623	1.015	1.469	0.963	0.939
4 K _I	z	DESIGN	CT	CT	cr	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	СŢ	r.	CT	CT	CT	C.T.	Ę,	CT	CI CI
2124	SPECIMEN	THICK (in.) B	0.998	0.498	0.998	0.497	1.501	1.501	1.502	1.500	1.500	1.502	1.602	1.501	1.601	1.499	1.601	0.997	1.501	1.601	1.000	1.601	966.0	0.998
ALUMINUM	Sc	WIDTH (in.)	3.000	1.000	2.000	3.000	3.000	3.000	3.000	3,000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	2.000	3.000	3.000	2.000	3.000	2.000	2.000
ALU		YIELD STR (Kal)	64.8	64.8	64.8	64.8	65.2	65.2	65.7	65.7	66.0	67.2	67.2	67.2	67.2	67.6	67.5	69.3	69.8	69.8	60.0	6.09	62.1	62.1
		SPEC		L					T-L Cont'd											3-T				
		TEST TEMP (°F)							R.T. Cont'd											R.T.				
	UCT	THICK (ib.)	3.00	3.00	3.00	3.00	1.57	1.57	1.75	1.75	1.75	1.67	1.67	1.57	1.67	6.50	6.50	4.00	4.50	4.50	3.00	4.50	2.50	2.50
	PRODUCT	FORM				•			Plate Cont'd											Plate				
		CONDITION							T851 (417) Cont'd											T851 (417)				

65 of 61

					ALU	ALUMINUM	2124	4 K _{Io}							
	PROI	PRODUCT	<u> </u>			SZ.	SPECIMEN	7	CRACK			K _{Io}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YTELD STR (Kal)	WIDTH (In.)	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 * (K, TYB)* (in.)	K. (Kelvin.)	K. MBAN	STAN	DATE	REFER
		2.50		I	62.9	2.000	0.998	CT	0.926	0.28	21.10			1973	86213
		2.50			62.9	2.000	0.998	C.	0.931	0.28	21.20			1973	86213
		1.67			63.0	1.000	0.501	CŢ	0.500	0.28	21.00			1973	86213
		1.67			63.0	1.000	0.500	СŢ	0.493	0.29	21.60			1973	86213
T851 (417)	Plate	2.50	R.T.	3.F	63.1	2.000	0.998	CT	0.929	0.26	20.30			1973	86213
Cont'd	Cont'd	1.67	Cont'd	Cont'd	64.4	1.000	0.500	cT	0.489	0.27	21.30	Cont'd	Cont'd	1973	86213
		1.67			64.4	1.000	0.500	CT	0.499	0.25	20.50			1973	86213
		1.75		<u> </u>	65.3	0.990	0.501	CT	0.459	0.19	18.20			1973	86213
		1.62			65.4	1.000	0.500	CT	0.488	0.16	16.70			1973	86213
		1.67			65.4	0.990	0.500	cr	0.471	12.0	18.80			1973	86213
		3.50			65.4	3.000	1.500	cr	1.537	0.45	27.90			1973	86213
T851 (417)	Plate	2.00	18		65.5	3.990	2.000	CT	2.087	29'0	32.50	29.5	2.6	1973	86213
		2.00			67.9	3.990	1.995	CT	2.032	0.43	28.10			1973	86213
		3.50			64.2	3.000	1.498	CT	1.520	0.33	23.30			1973	86213
		3.50			64.2	3.000	1.499	cr	1.646	26.0	22.80			1973	86213
1861 (417)	Plate	2.00	5		65.3	4.000	2.000	CT	2.159	99'0	30.90	25.3	8.8	1973	86213
		2.00			66.7	4.000	1.999	CT	2.142	0.33	24.30			1973	86213
		3.76			61.3	2.000	0.999	СT	1.016	0.51	27.80			1973	86213
		3.38		1	61.6	2.000	1.000	CT	0.955	0.47	26.70			1973	86213
T851 (417)	Plate	3.38	82	5	61.6	2.000	1.000	CT	0.960	0.51	27.80	28.0	3.5	1973	86213
		3.15		1	63.0	2.000	0.998	cT	0.995	0.49	28.00			1973	86213
		3.75			64.2	2.000	1.001	CT	1.000	0.45	27.10			1973	86213

		REFER	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213
		DATE	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973
		STAN											Cont'd										
	$\mathbf{K}_{\mathbf{I}\mathbf{c}}$	K, MEAN											Cont'd										
		K. (Keivin.)	27.00	26.90	27.00	26.40	26.30	27.10	27.30	36.40	36.70	26.10	26.70	29.80	33.70	34.90	25.50	24.90	24.80	25.30	26.00	25.20	26.60
		2.6 * (K _{t.,} TYS)* (in.)	0.44	0.43	0.43	0.41	0.41	0.43	0.44	0.77	0.78	0.39	0.41	0.51	0.65	0.69	0.36	0.34	0.34	0.34	0.35	0.33	0.33
	CRACK	LENGTH (in.) A	0.997	1.012	0.980	0.957	0.965	1.018	1.006	2.103	2.097	0.960	0.959	2.181	2.146	2.159	0.958	0.953	0.945	0.968	0.963	0.939	0.960
olaa -	z	DESIGN	CT	CT	CT	CT	CI	CT	CT	CT	CT	CI	CT	cr	CT	CT	CT.	СŢ	CT	CT	CT	СŢ	CT
1777	SPECIMEN	THICK (in.) B	0.998	1.000	0.999	1.000	0.998	1.002	1.001	1.997	1.997	0.999	0.998	1.998	1.998	2.000	1.000	0.998	0.998	0.999	0.999	0.998	1.001
ALCIMENOM	SC	WIDTH (fn.)	2.000	2.000	2.000	2.000	2.000	1.990	1.990	4.000	4.000	2.000	2.000	4.000	3.990	3.990	2,000	2.000	2.000	2.000	2.000	2.000	2.000
770		YTELD STR (Kai)	64.2	64.6	65.1	65.3	65.3	65.4	65.4	65.6	65.6	65.7	65.7	65.8	66.2	66.2	67.0	67.4	67.4	68.6	69.7	69.7	69.7
		SPEC OR											Cont'd										
		TEST TEMP (°F)											82 Cont'd										
	UCT	THICK (In.)	3.75	3.75	3.15	3.38	3.38	2.50	2.50	2.50	2.50	3.15	3.15	2.50	2.50	2.50	2.75	2.75	2.75	2.75	2,62	2.52	2.62
	PRODUCT	FORM											Plate Cont'd		·								
		CONDITION											T851 (417) Cont'd										

					ALU	ALUMINUM	I 2124	74 K _{Ie}	NUM 2124 K _{1c}						
	PROI	PRODUCT				S	SPECIMEN	Z	CRACK			K _I °			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (In.)	THICK (in.)	DESIGN	LENGTH (In.)	2.5 * (K _{t.,} TYS)* (in.)	K. (Keivin.)	K. MEAN	STAN	DATE	REFER
		3.75		1	59.2	2.000	0.999	LO	1.014	0.42	24.20			1973	86213
		3.38			61.0	2.000	0.998	CT	0.958	0.54	28.40			1973	86213
		3.38	•		61.0	2.000	0.999	CT	0.974	0.51	27.50			1973	86213
		3.00		1	61.8	3.000	1.500	CT	1.560	0.29	21.10			1973	86213
		3.75			63.0	2.000	1.000	CT	0.999	0.34	23.20			1973	86213
		3.75			63.0	2.000	1.001	ст	1.005	0.34	23.30			1973	86213
		3.15			63.4	2.000	1.000	CT	1.000	0.43	26.30			1973	86213
		3.76		1	63.8	2.000	1.001	CT	1.011	0.34	23.50			1973	86213
		2.60			64.2	1.990	1.001	CT	1.039	0.42	26.30			1973	86213
		2.50		<u></u>	64.2	1.990	1.001	СT	1.055	0.41	26.10			1973	86213
		3.15			64.2	2.000	1.000	СТ	1.003	0.38	24.90			1973	86213
,		2.50			64.4	4.000	1.997	CT	2.099	0.35	24.00			1973	86213
1851 (417)	Piate	2.50	22	3	64.4	4.000	1.997	CT	2.183	0.54	30.00	25.0	2.4	1973	86213
	_	2.50			64.4	3.990	1.999	ст	2.172	0.54	29.90			1973	86213
		3.38			64.7	2.000	0.998	cT	0.989	0.41	26.10			1973	86213
		2.50			64.8	4.000	2.001	Сľ	2.134	0.46	27.70			1973	86213
		2.50			64.8	4.000	1.998	CT	2.153	0.47	28.10			1973	86213
		3.15			65.0	2.000	1.001	cr	0.982	0.37	25.00			1973	86213
		3.15			65.0	2.000	0.998	CT	0.995	0.36	24.60			1973	86213
		2.75			65.3	2.000	0.999	cr	0.968	0.35	24.30			1973	86213
		1.62			65.4	3.000	1.500	CT	1.581	0.26	21.20			1973	86213
		2.75			66.1	2.000	1.000	ст	0.967	0.34	24.40			1973	86213
		2.75			66.1	2.000	1.001	CT	0.949	0.32	23.60			1973	86213
		2.75			6.9	2.000	0.998	CT	0.940	0.27	22.10			1973	86213

				ALUI	ALUMINUM	I 2124	4 K _{Io}							
PRODUCT		1			70C	SPECIMEN	z	CRACK			Kı			
THICK TEMP SPEC (in.)		E O		YIELD STR (Kal)	WIDTH (fn.)	THICK (in.)	DEBIGN		2.6 • (KTYB)* (in.)	K. (Keivin.)	K. MBAN	STAN	DATE	REFER
2.52			!	67.0	2.000	0.998	CT	0.979	0.31	23.70			1973	86213
		H	- <u> </u>	97.9	2.000	0.998	CT	0.955	0.28	22.60			1973	86213
2.52 Cont'd Co		ပိ	Cont'd	97.9	2,000	.1.000	cr	0.976	0.29	23.10	Cont'd	Cont'd	1973	86213
2.52		- 1		68.6	2.000	0.995	CT	0.987	0.29	23.40			1973	86213
3.76	·			58.1	2.000	1.000	cr	0.976	0.37	22.30			1973	86213
3.38			<u>!</u>	9.69	2.000	1.001	CT	0.947	0.40	23.90			1973	86213
3.50			l	68.9	2.000	0.998	CT	0.987	0.27	19.80			1973	86213
3.50			1	68.9	2.000	0.998	CT	0.992	0.32	21.40			1973	86213
3.50	-		!	61.4	1.990	1.001	СŢ	0.985	0.40	24.70			1973	86213
3.50	·		1	61.4	1.990	1.001	СŢ	0.988	0.43	25.40			1973	86213
3.38			1	61.4	2.000	0.998	CT	0.962	0.48	26.90			1973	86213
3.76			1	62.2	2.000	1.001	СT	0.983	0.36	23.60			1973	86213
3.15				62.3	2.000	1.000	CT	0.938	0.34	22.90			1973	86213
3.16 82				62.6	2.000	0.999	CT	0.955	0.33	22.90	22.0	2.3	1973	86213
2.75			1	63.3	2.000	1.000	ÇĪ	0.935	0.28	21.30			1973	86213
2.50			1	63.5	1.990	1.001	CT.	0.965	0.29	21.80			1973	86213
2.50			1	63.5	1.990	1.001	CT	0.974	0.31	22.20			1973	86213
2.75	<u>_</u>		1	64.2	2.000	0.998	cī	0.929	0.25	20.50			1973	86213
2.62				66.1	2.000	1.000	Ç	0.963	0.29	22.00			1973	86213
2.76			1	66.0	2.000	0.999	CT	0.948	0.18	17.80			1973	86213
2.62			L	66.1	2.000	0.998	CT.	0.947	0.21	19.30			1973	86213
2.52				66.3	2.000	0.998	CT	0.945	0.20	18.80			1973	86213
2.52		- 1		6.99	2.000	0.998	CŢ	0.974	0.24	20.60			1973	86213

					ALU	ALUMINUM	I 2124	24 K _{Io}							
	PROI	PRODUCT				SC	SPECIMEN	Z	CRACK			K _{Io}			
CONDITION	FORM	THICK (in.)	TEMP TEMP (°F)	SPEC	YTRLD STR (Kel)	WIDTH (in.) W	THICK (in.)	DESIGN	LENGTH (In.)	2.6 • (K _{s.,} TYS)" (in.)	K _e (Kelvin.)	K. MBAN	STAN	DATE	REFER
T851 (417)	Plate	3.76	84	3.F	62.2	2.000	0.998	CT	0.998	0.34	23.10	:		1973	86213
		9.00			67.1	3.000	1.500	CT	1.522	0.65	29.10			1973	86213
		6.00			67.1	3.000	1.500	CT	1.549	0.68	29.70			1973	86213
		4.50			69.8	3.000	1.501	CT	1.532	0.77	33.10			1973	86213
		4.50			69.8	3.000	1.500	CT	1.509	0.71	31.90			1973	86213
7 7 7 7 7 7	ı	2.04	į		65.4	1.500	0.752	CT	0.752	0.26	21.10			1973	86213
(48) 1981.	Plate	2.04	i i	7.7	65.4	1,500	0.752	CT	0.738	0.27	21.30	27.2	4.7	1973	86213
		4.00			65.5	3.000	1.500	cT	1.578	0.31	23.00			1973	86213
		4.00			65.5	2.990	1.501	cr	1.562	0:30	22.50			1973	86213
		2.00			66.2	3.000	1.501	cr	1.565	0.62	30.30	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		1973	86213
		2.00			66.2	3.000	1.502	СT	1.564	0.53	30.40			1973	86213
		6.00	•		65.0	3.000	1.500	CT	1.563	0.46	23.70			1973	86213
		6.00			66.0	3.000	1.500	cr	1.676	0.48	24.10			1973	86213
		4.50			58.5	3.000	1.500	CT	1.567	0.61	26.50			1973	86213
T861 (SP)	Plate	2.04	R.T.	T-L	65.2	1.500	0.751	CT	0.729	0.22	19.40	23.1	2.7	1973	86213
		2.04			65.2	1.500	0.752	C.	0.741	0.22	19.50			1973	86213
		2.00			65.4	3.000	1.500	CT	1.641	0.94	24.10			1973	86213
		2.00			65.4	3.000	1.602	CT	1.642	0.35	24.40			1973	86213

TABLE 7.9.2.1 (CONCLUDED)

					ALU	ALUMINUM 2124	1	2124 K _{Io}							
	PROI	PRODUCT				Ø2	SPECIMEN	Ž.	CRACK			K _{Io}			
CONDITION	FORM	THICK (in.)	TEMP (°F)	SPEC	YIELD STR (Kal)	WIDTH (in.)	THICK (in.)	DESIGN	LENGTH (in.)	2.5 * (K _w ,TYS) ² (in.)	K. (Kefvlin.)	K. MEAN	STAN	DATE	REFER
		9.00		1	64.8	3.000	1.500	ст	1.635	0.50	24.50			1973	86213
		90.9			54.8	3.000	1.500	cr	1.526	09:0	24.50			1973	86213
		4.50			67.3	3.000	1.500	ст	1.542	0.47	24.90			1973	86213
		4.50			67.3	3.000	1.502	cr	1.643	0.61	25.80			1973	86213
(gb) 138T	5	4.00	Ę	-	60.2	3.000	1.501	CT	1.540	0.28	20.00			1973	86213
(30) 1001		4.00	į	3	60.2	3.000	1.502	CT	1.560	0.27	19.90	21.4	3.2	1973	86213
		2.04			62.7	1.500	0.751	cr	0.726	0.21	18.10			1973	86213
		2.04			62.7	1.500	0.752	CT	0.729	0.20	17.60			1973	86213
		2.00		1	64.9	1.490	0.750	CT	0.739	0.22	19.10			1973	86213
:		2.00			64.9	1.500	0.750	CT	0.739	22.0	19.20			1973	86213

61 of 61

							A.	ALUMINUM	NUM	2124	Kc								
	PROI	PRODUCT				SPECIMEN	MEN	CRACK	СК ўТН	GROSS	SS SS		Kapp			Кc	·		
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Kal)	WIDTH 1	THICK (In.)	INIT (In.)	FINAL (in.)	ONSET (Ket) o,	MAX (Ket)	K (Kelvin)	K.	STAN	K _o (Kel√in)	K _o MEAN	STAN DEV	DATE	RBFER
							BUCKLE	4G OF C	RACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRAL	NED							
		0.25			59.7	3.000	0.248	1.230	1.600	15.50	22.60	35.13			43.80*			1973	86213
		0.25			55.4	3.000	0.249	1.143	1.786	15.50	22.10	32.56			48.04*		1	1973	86213
		0.25			56.4	3.000	0.249	1.127	1.710	15.20	20.40	29.76			42.28*			1973	86213
		0.25			65.5	3.000	0.249	1.122	1.786	16.20	20.20	29.39			43.91*			1973	86213
		0.25			55.5	3.000	0.249	1.120	1.763	15.00	20.90	30.37			44.75*			1973	86213
		0.25			8.69	3.000	0.249	1.220	1.780	18.80	26.80	41.41			58.04*			1973	86213
		0.25			62.9	3.000	0.249	1.240	1.700	13.40	18.60	29.09			38.31			1973	86213
		0.25			55.4	3.000	0.250	1.127	1.755	14.30	21.70	31.66			46.23*		•	1973	86213
1381	Plate	0.25	R.T.	Ţ.	57.4	3.000	0.250	1.320	1.790	15.00	20.30	33.30	33.3	4.3	44.24	38.2	2.8	1973	86213
		0.25			57.4	3.000	0.250	1.210	1.720	14.70	20.90	32.10			43.59*			1973	86213
		0.25			59.7	3.000	0.250	1.190	1.700	16.40	25.00	37.93			51.50*			1973	86213
		0.25			59.7	3.000	0.250	1.220	1.690	16.30	22.20	34.30			45.45*			1973	86213
		0.25			69.8	3.000	0.250	1.230	1.700	16.00	23.40	36.37			48.20*			1973	86213
*****		0.25			6.69	3.000	0.250	1.220	1.700	14.00	20.90	32.29			43.05*			1973	86213
		0.25			6.69	3,000	0.250	1.240	1.640	13.40	18.50	28.93			36.73			1973	86213
		0.25			6.69	3.000	0.250	1.250	1.640	13.30	17.10	26.90			33.95			1973	86213
		0.25			61.1	3.000	0.250	1.240	1.770	17.70	26.80	41.91			57.67*			1973	86213

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

TABLE 7.9.2.2 (CONCLUDED)

							*	TOW	ALUMINUM	2124	Kc								
	PROI	PRODUCT				SPECIMEN	IMEN	CRACK	CRACK	GROSS STRESS	SS		Карр			К _С			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Ket)	WIDTH (In.)	THICK (In.) B	INIT (in.) 2a,	FINAL (in.) 2a,	ONSET (Ket) 0.	MAX (Kst)	K (Kelvin)	K. MEAN	STAN	K. (KetVin)	K _o MEAN	STAN	DATE	REFER
							BUCKLI	NG OF	RACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRA	INED							
		0.25			61.1	3.000	0.250	1.240	1.800	17.30	29.10	45.51			63.82*			1973	86213
		0.25			61.1	3.000	0.250	1.240	1.710	18.80	26.60	41.60			55.13*			1973	86213
		0.25			62.9	3.000	0.250	1.240	1.600	13.30	19.90	31.12			38.57			1973	86213
T851 Cont'd	Fiste Cont'd	0.25	R.T. Cont'd	T.L Cont'd	62.9	3.000	0.250	1.200	1.650	14.00	21.20	32.36	Cont'd	Cont'd	42.35	Cont'd	Cont'd	1973	86213
		0.25			55.5	3.000	0.251	1.128	1.778	14.90	21.90	31.99			47.36*			1973	86213
		0.25			57.4	3.000	0.251	1.220	1.740	15.30	18.50	28.58			39.07			1973	86213
		0.25			8.69	3.000	0.252	1.220	1.880	16.80	23.60	36.46			64.52*			1973	86213

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

RESISTANCE CURVE

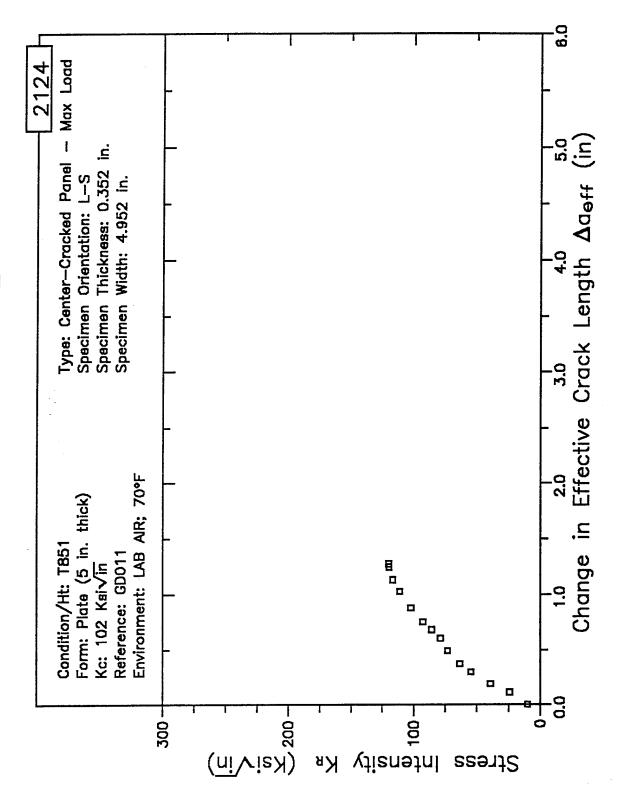


Figure 7.9.2.3.1



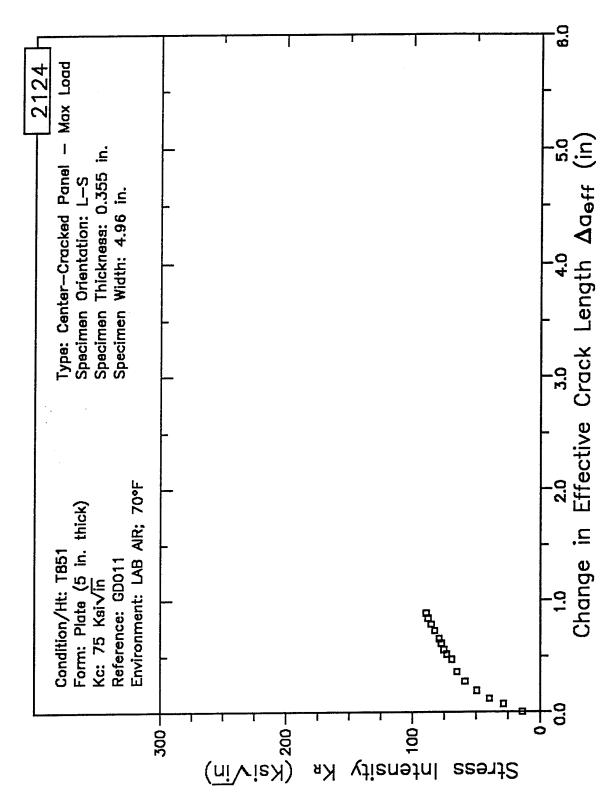


Figure 7.9.2.3.2

RESISTANCE CURVE

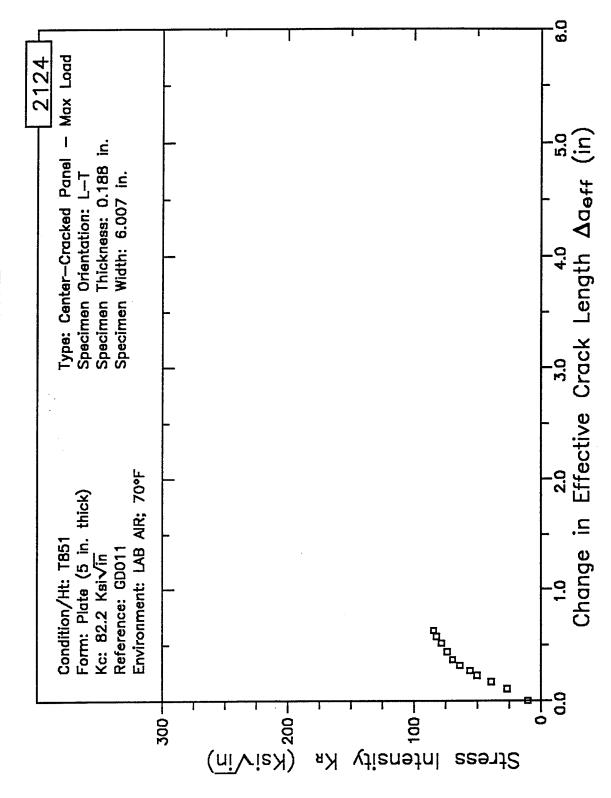


Figure 7.9.2.3.3



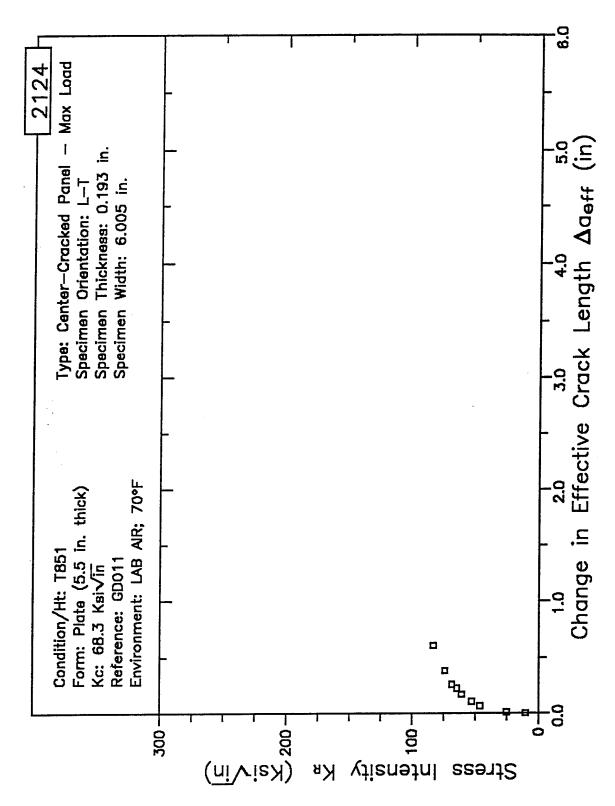


Figure 7.9.2.3.4

RESISTANCE CURVE

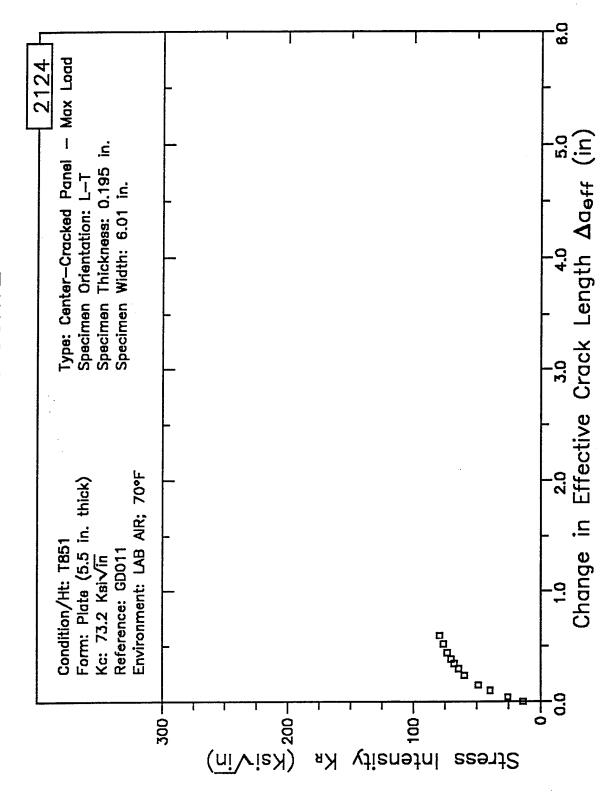


Figure 7.9.2.3.5

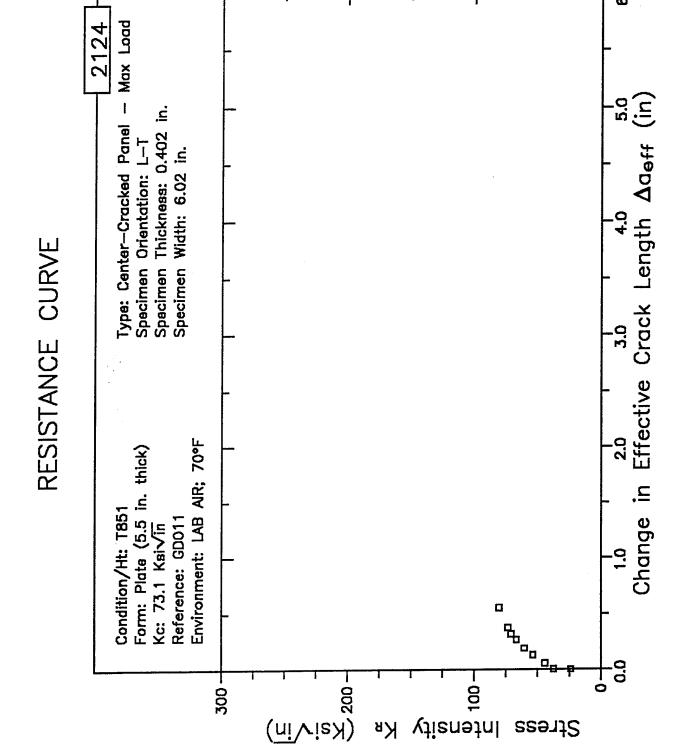


Figure 7.9.2.3.6

RESISTANCE CURVE

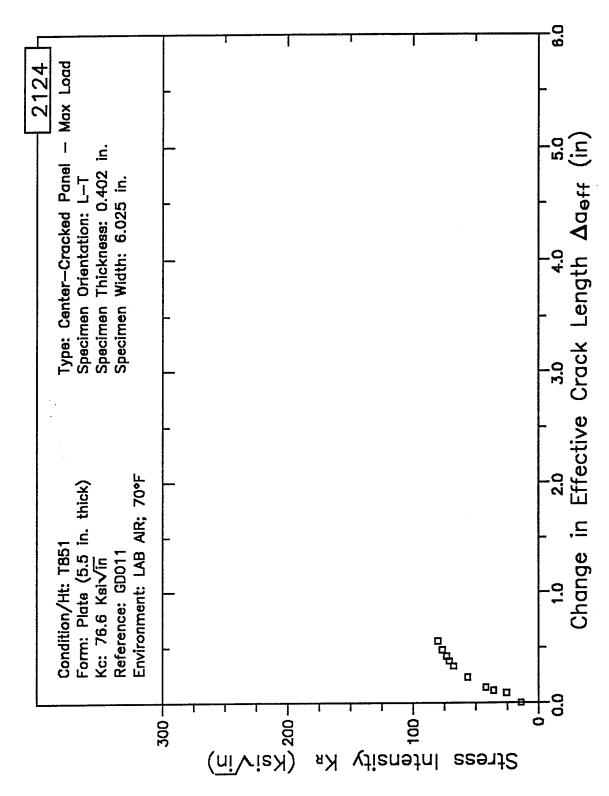


Figure 7.9.2.3.7



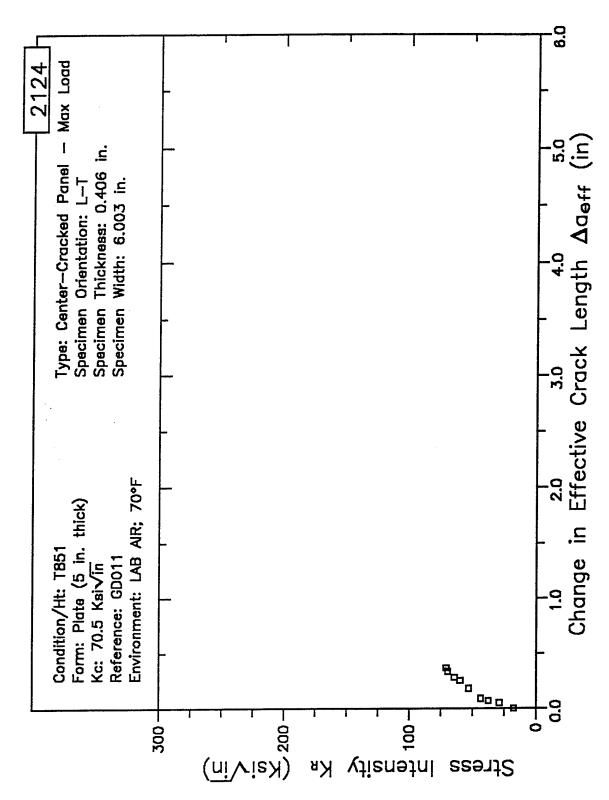


Figure 7.9.2.3.8

RESISTANCE CURVE

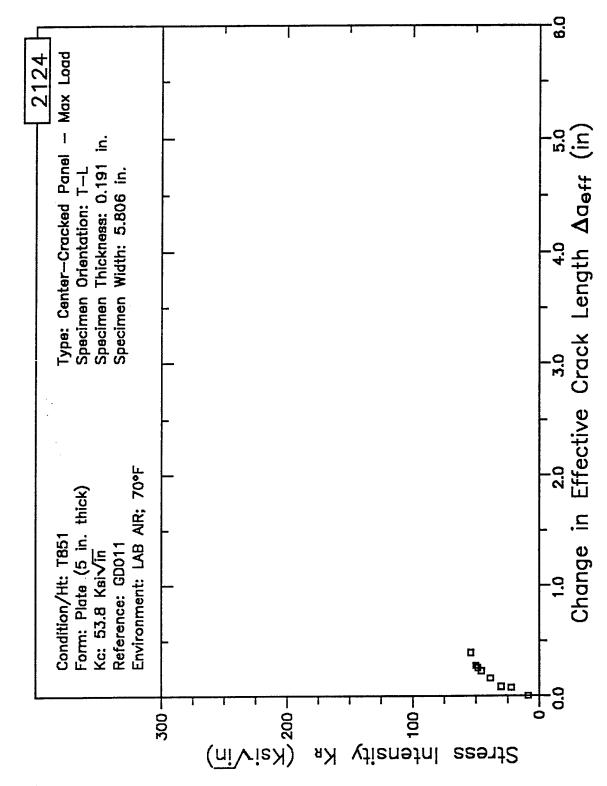


Figure 7.9.2.3.9

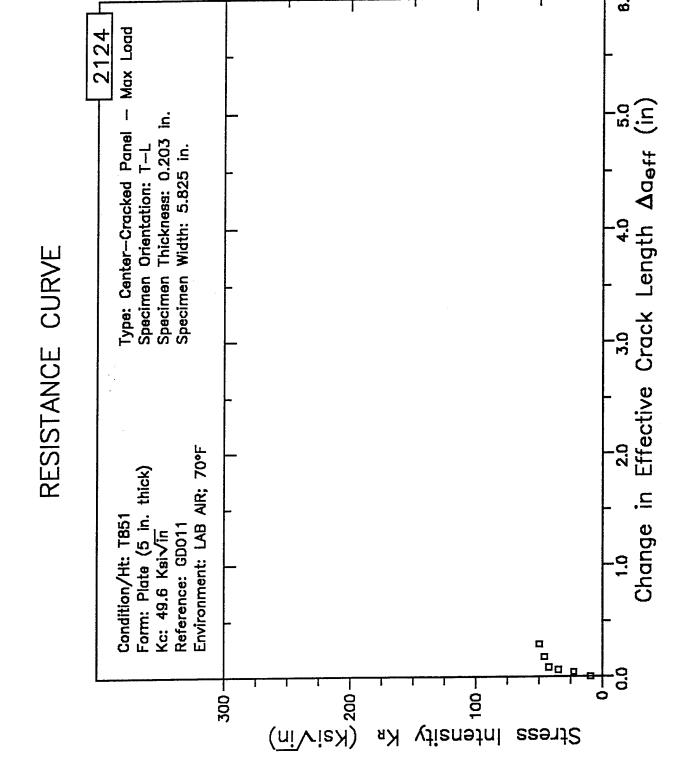


Figure 7.9.2.3.10

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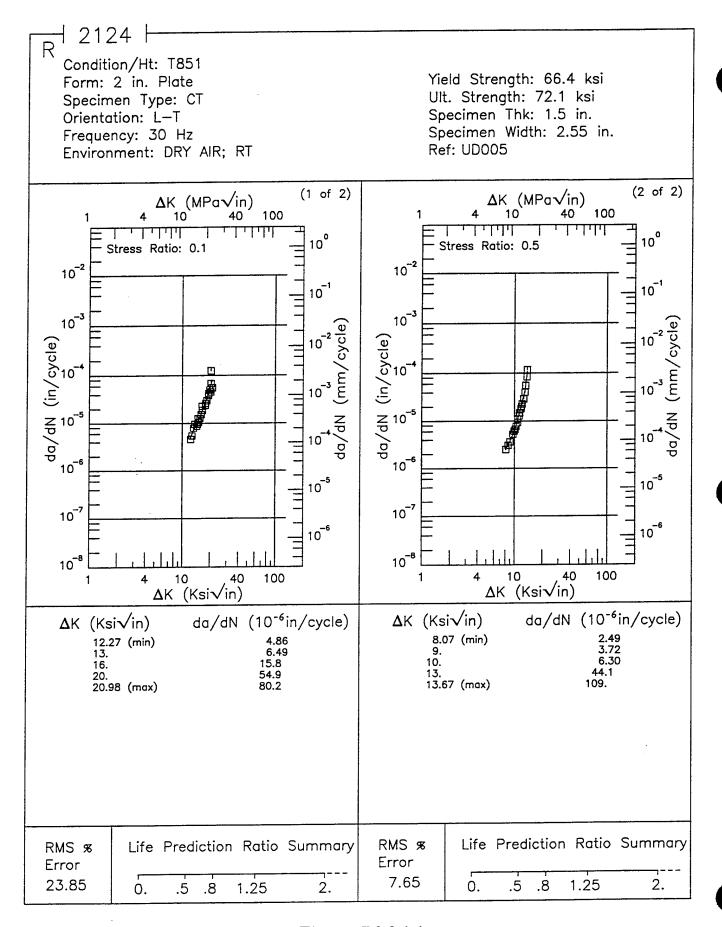


Figure 7.9.3.1.1

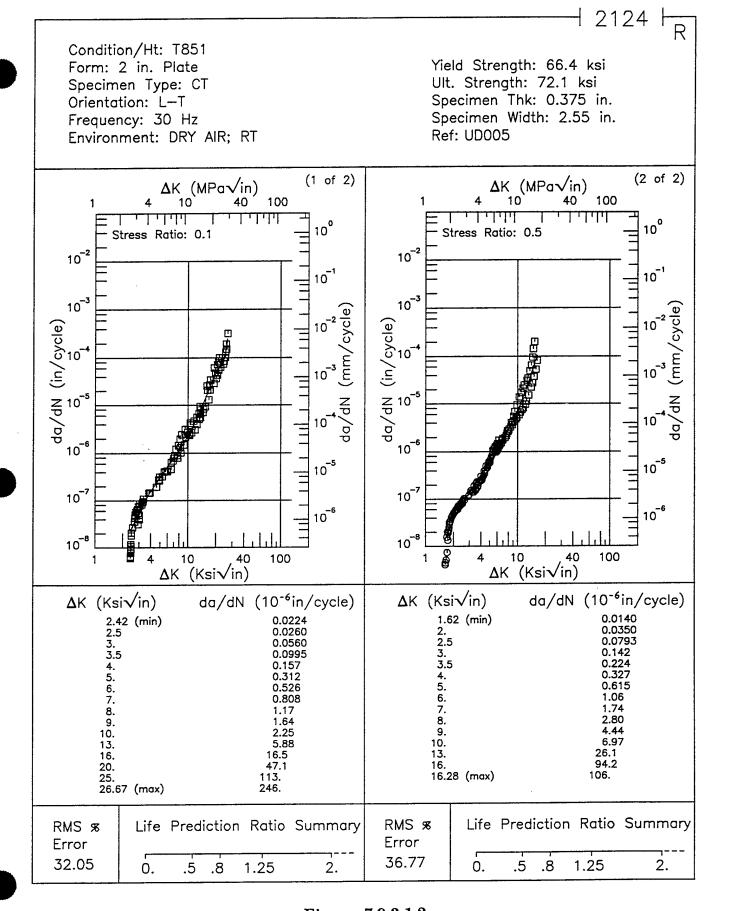


Figure 7.9.3.1.2

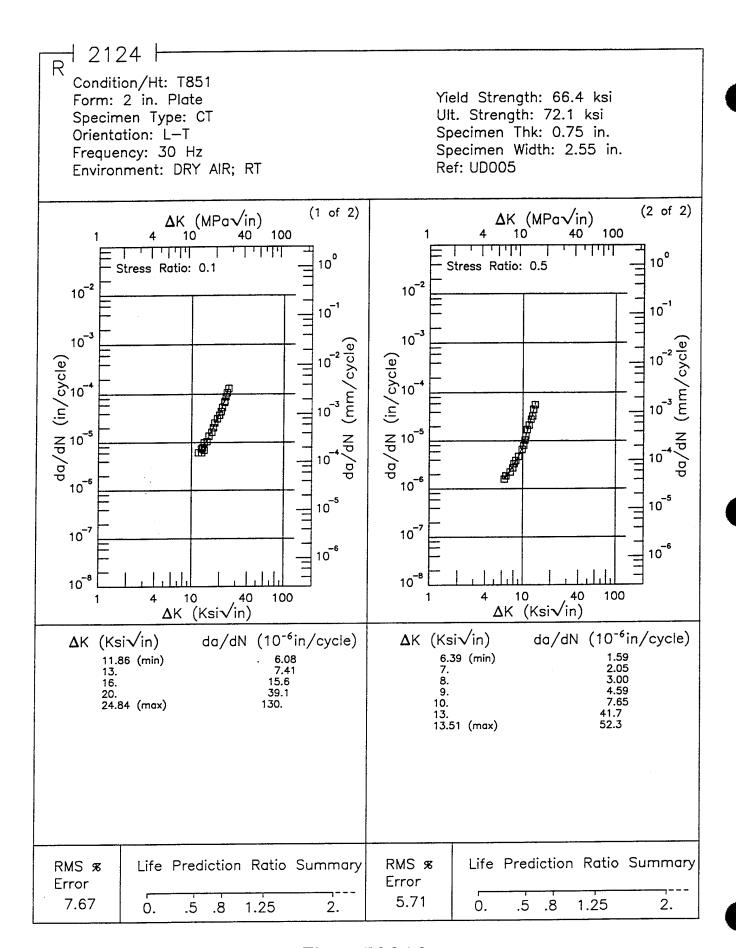


Figure 7.9.3.1.3

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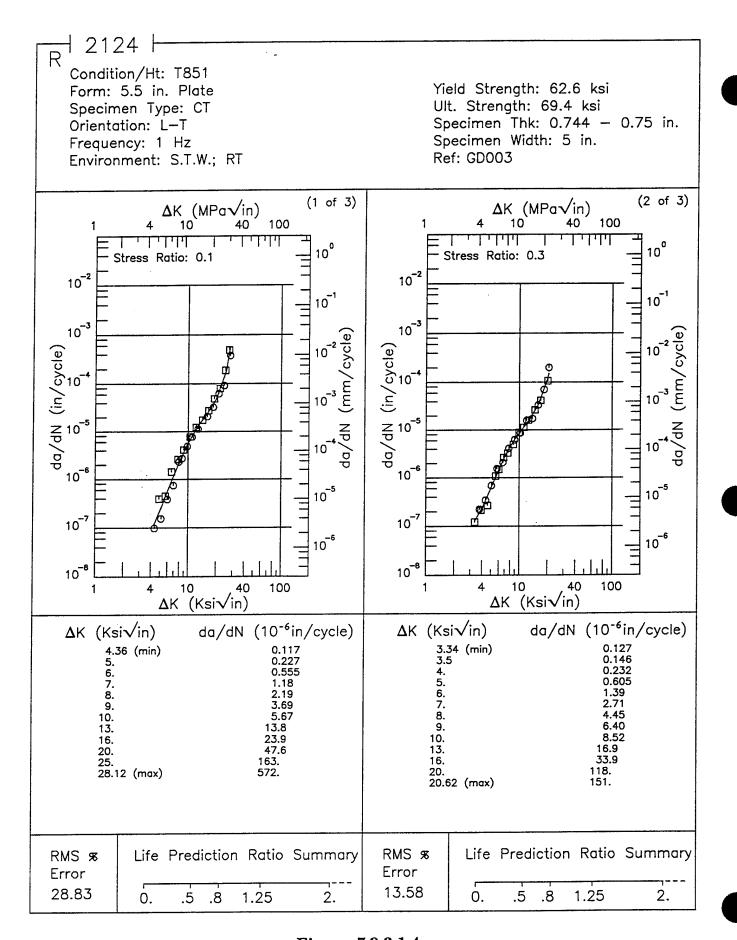


Figure 7.9.3.1.4

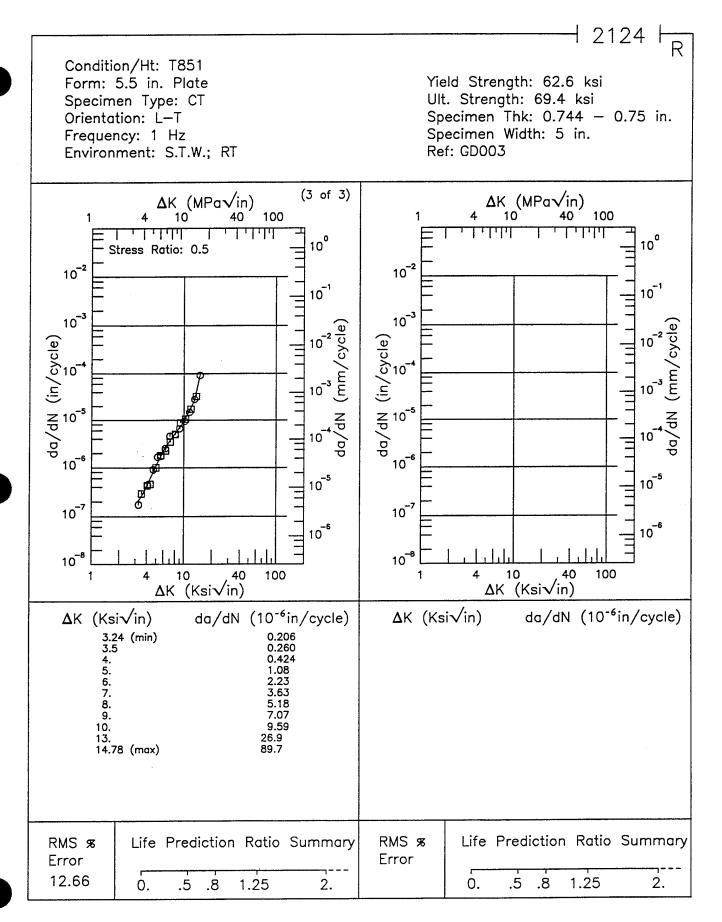


Figure 7.9.3.1.4 (Concluded)

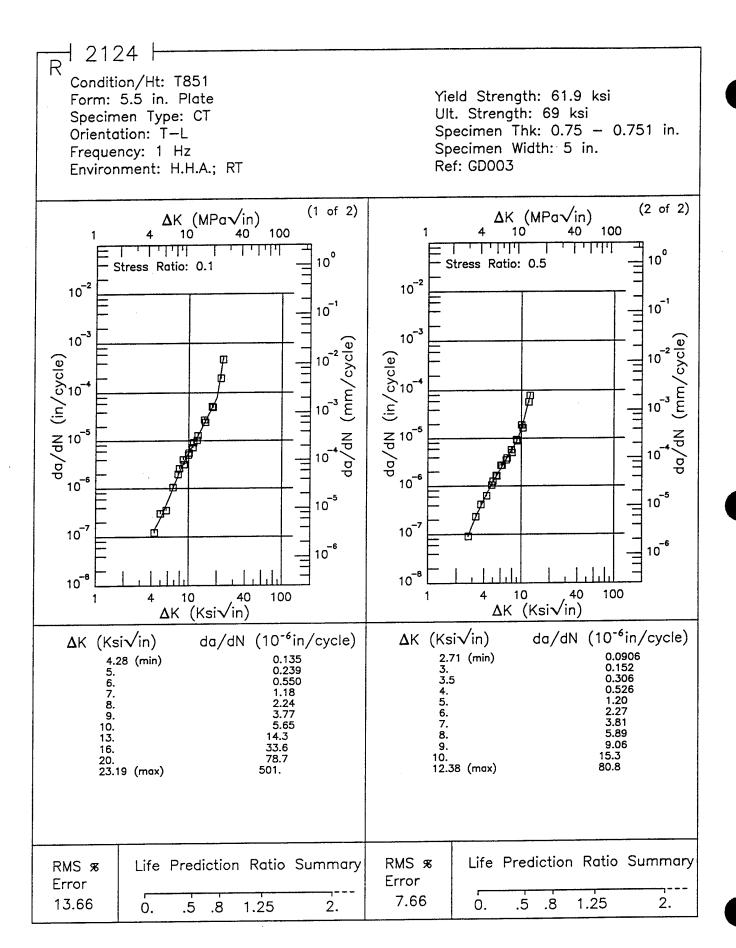


Figure 7.9.3.1.5

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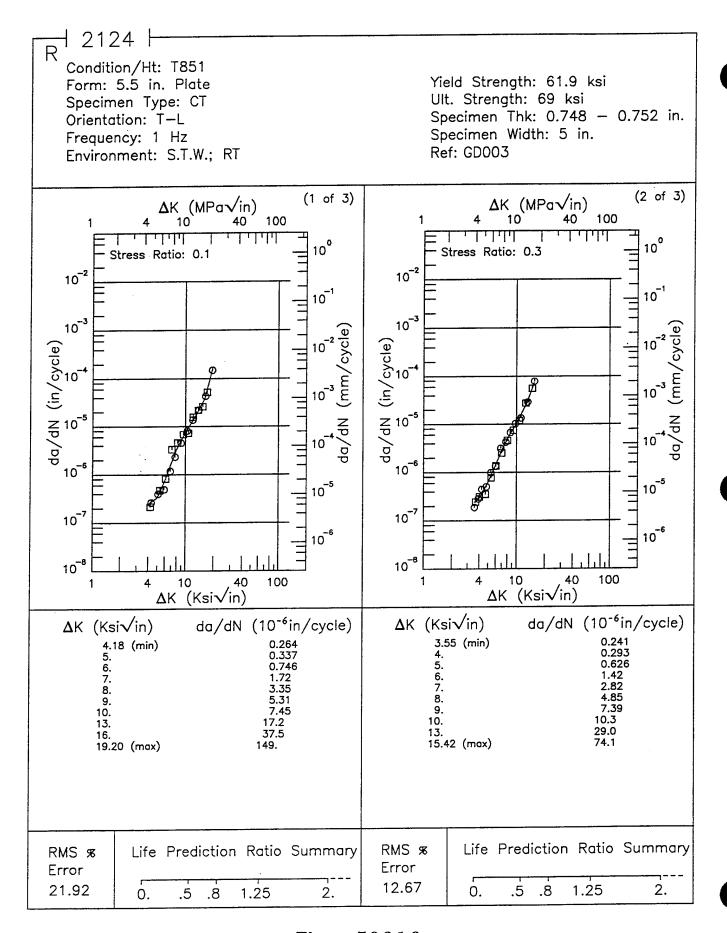


Figure 7.9.3.1.6

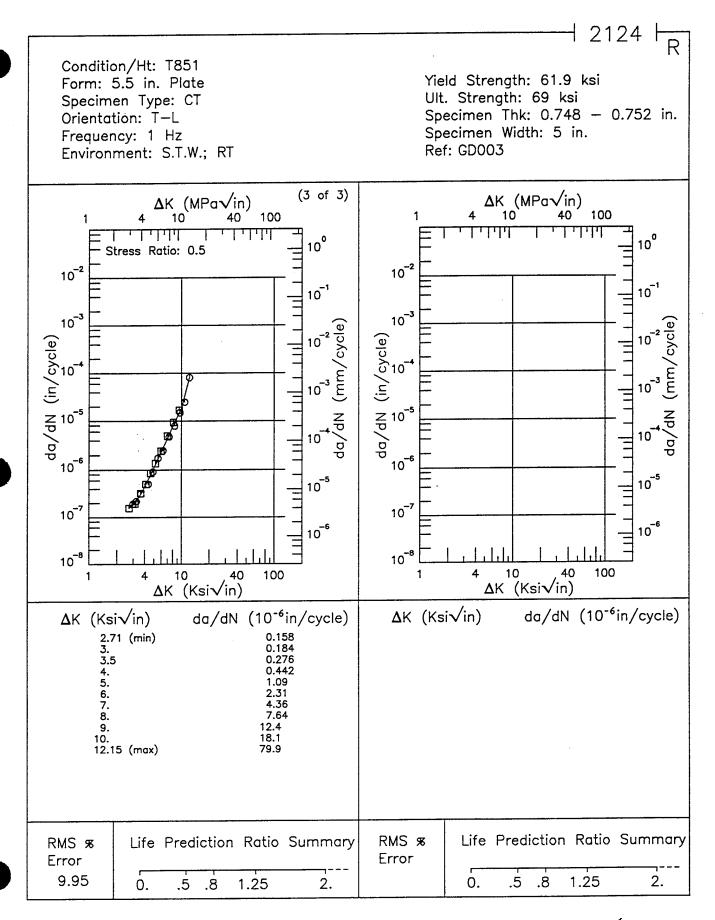


Figure 7.9.3.1.6 (Concluded)

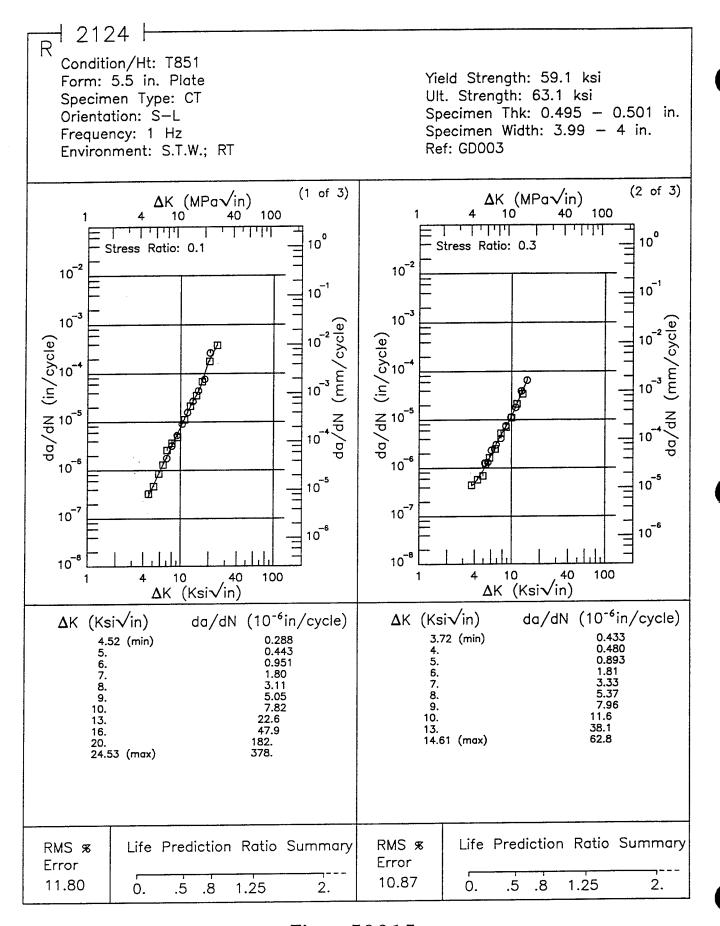
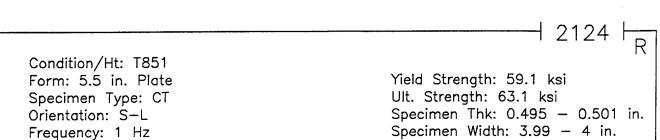


Figure 7.9.3.1.7



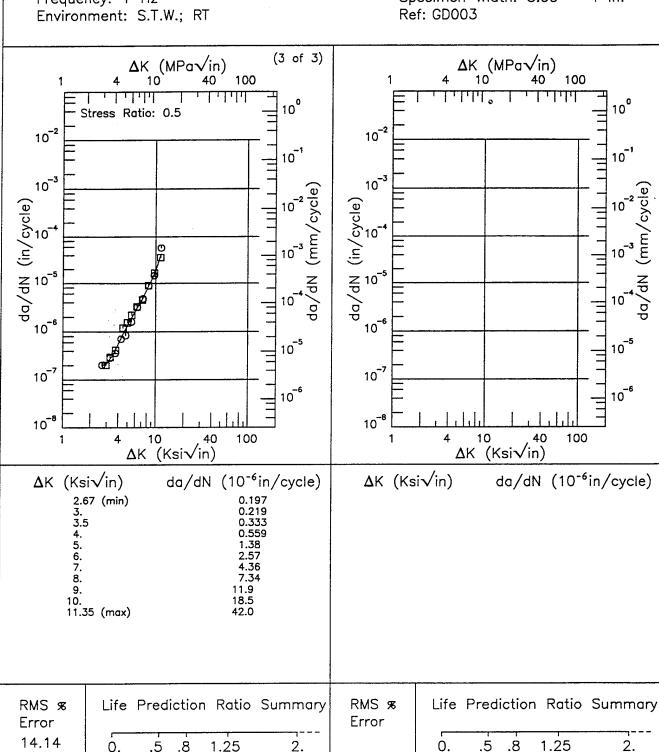


Figure 7.9.3.1.7 (Concluded)

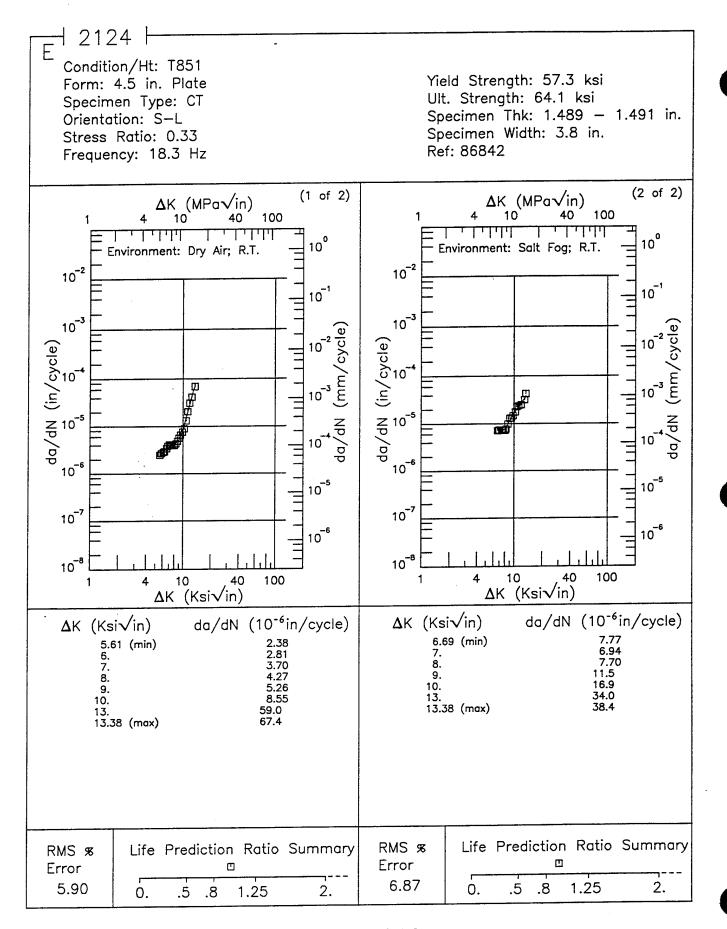


Figure 7.9.3.1.8

┨ 2124 ┠ Condition/Ht: T851 Yield Strength: 57 ksi Form: 5.5 in. Plate Ult. Strength: Specimen Type: CCP (max load specified) Specimen Thk: 0.5 in. Orientation: T-L Specimen Width: 6 in. Frequency: Ref: BL002 Environment: H.H.A.; RT (1 of 1) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 10 100 10 100 40 40 1 1 1 1 1 1 1 10° 10° Stress Ratio: 0.07 10-2 10-2 10-1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10-6 10-6 10 -5 10 -5 10⁻⁷ 10⁻⁷ 10 -6 10 6 10⁻⁸ 10⁻⁸ 100 10 40 100 10 40 ΔK (Ksi√in) ΔK (Ksi√in) $da/dN (10^{-6}in/cycle)$ ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 2.71 (min) 3. 3.12 (max) 0.0952 0.0627 Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 41.62 .5 .8 1.25 Ò. .5 .8 1.25 0. 2. 2.

Figure 7.9.3.1.9

┧ 2124 ┧ R Condition/Ht: T851 Yield Strength: 63.2 ksi Form: 5.5 in. Plate Specimen Type: CCP (max load specified) Ult. Strength: Specimen Thk: 0.5 in. Orientation: T-L Specimen Width: 6 in. Frequency: 10 - 33 Hz Ref: BL002 Environment: H.H.A.; RT (1 of 1) Δ K (MPa \sqrt{in}) ΔK (MPa√in) 10 40 100 10 10° 10° Stress Ratio: 0.1 10⁻² 10-2 10-1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10 -5 10⁻⁵ 10⁻⁷ 10⁻⁷ 10 6 10 6 10⁻⁸ 10-8 10 40 100 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 3.20 (min) 3.5 0.0668 0.0648 4. 5. 0.0891 0.258 0.610 6.78 (max) 0.847 Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 33.02 . 5 0. .5 8. 1.25 2. .8 1.25 2. 0.

Figure 7.9.3.1.10

1 2124 R

Condition/Ht: T851 Form: 5.5 in. Plate

Specimen Type: CCP (max load specified)

Orientation: T-L

Frequency: 10 - 33 Hz Environment: H.H.A.; RT Yield Strength: 63.2 ksi

Ult. Strength:

Specimen Thk: 0.5 in. Specimen Width: 4 in.

Ref: BL002

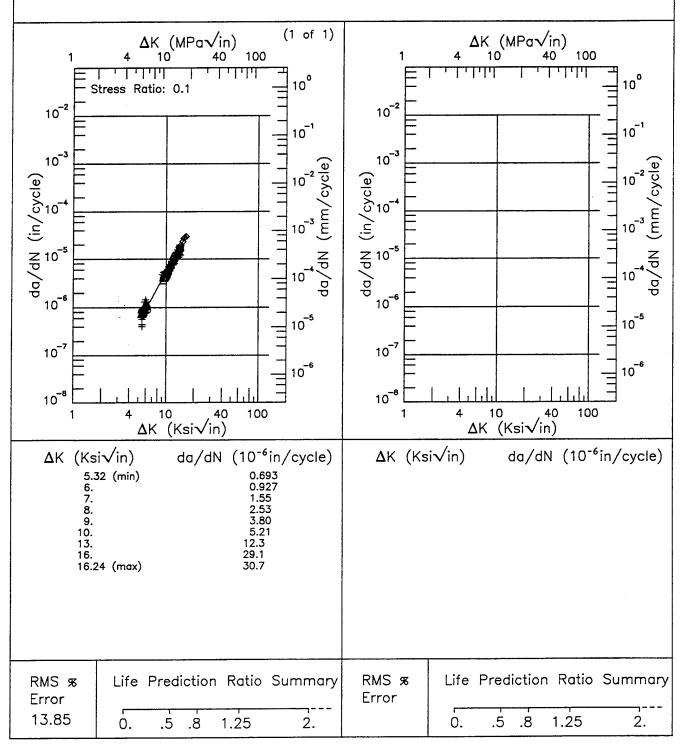


Figure 7.9.3.1.11

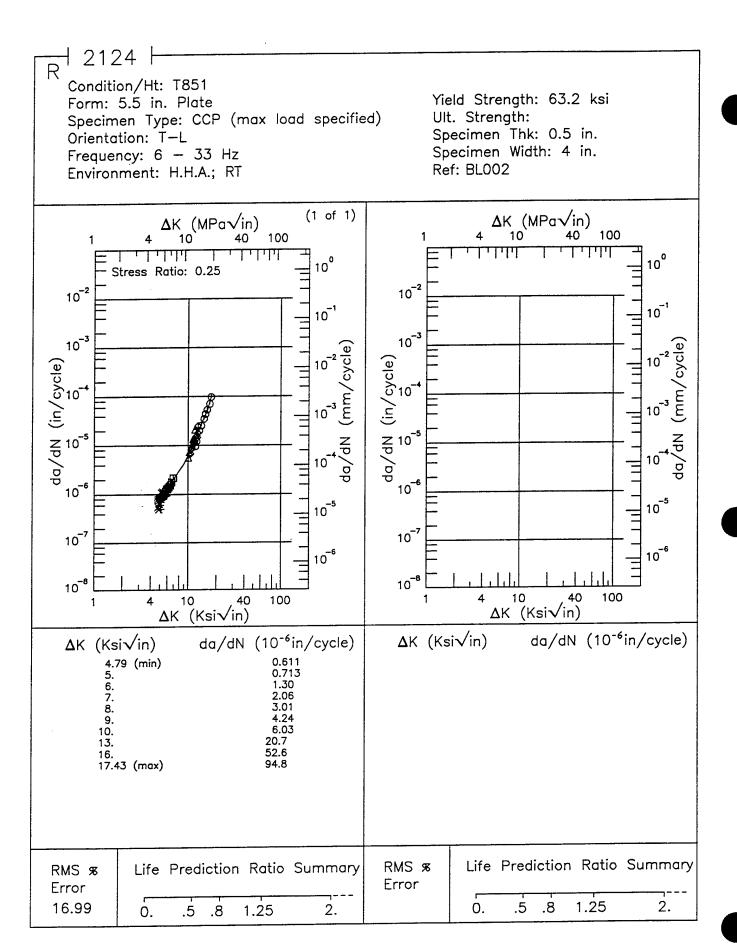


Figure 7.9.3.1.12

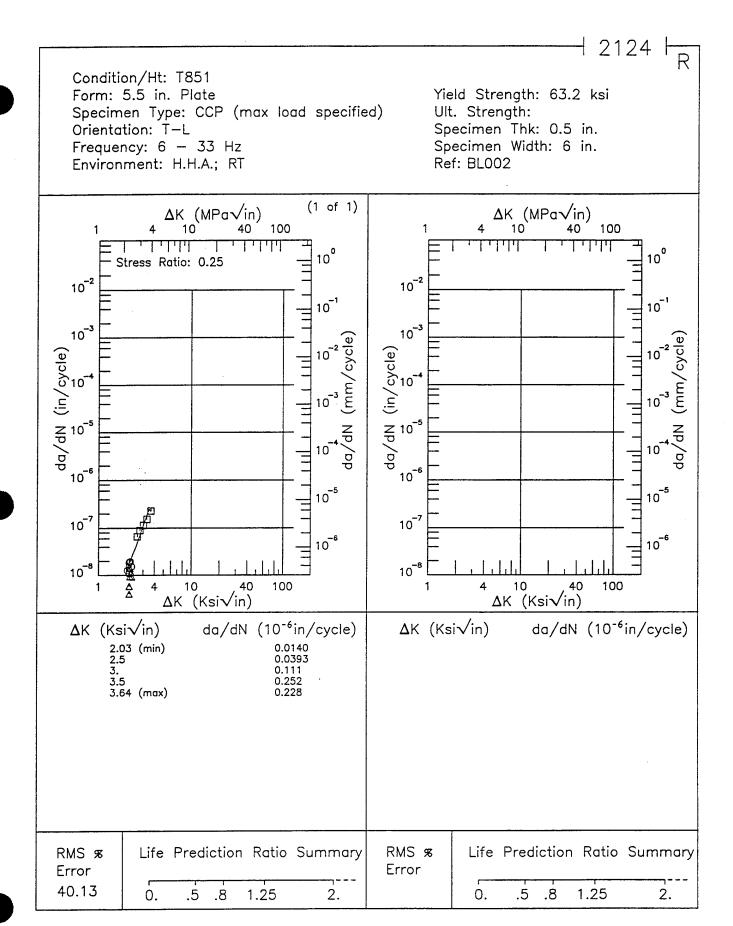


Figure 7.9.3.1.13

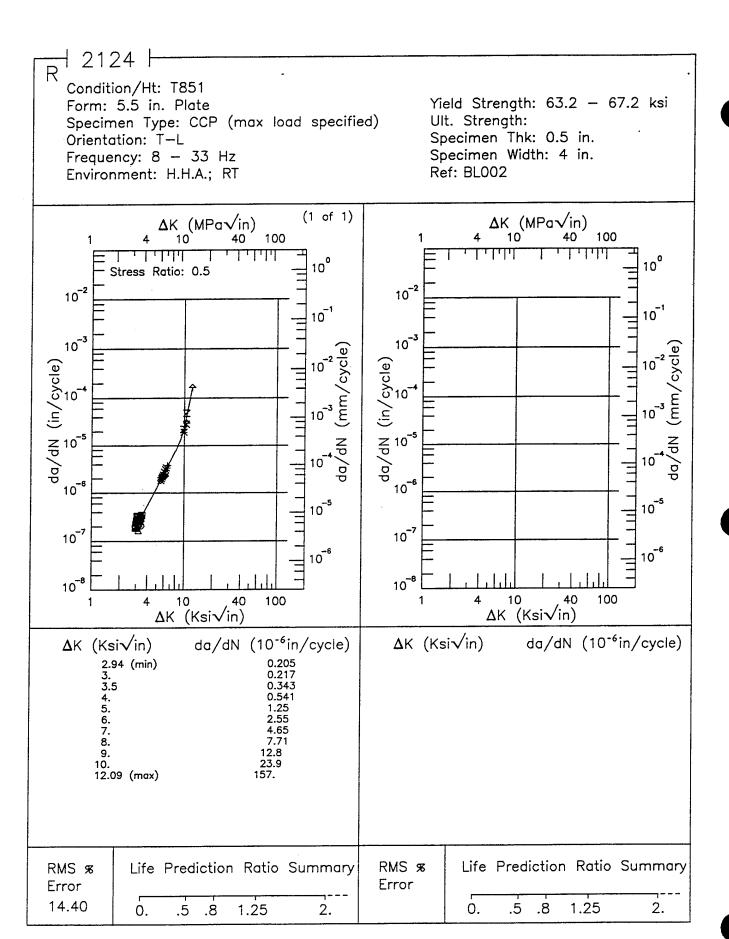


Figure 7.9.3.1.14

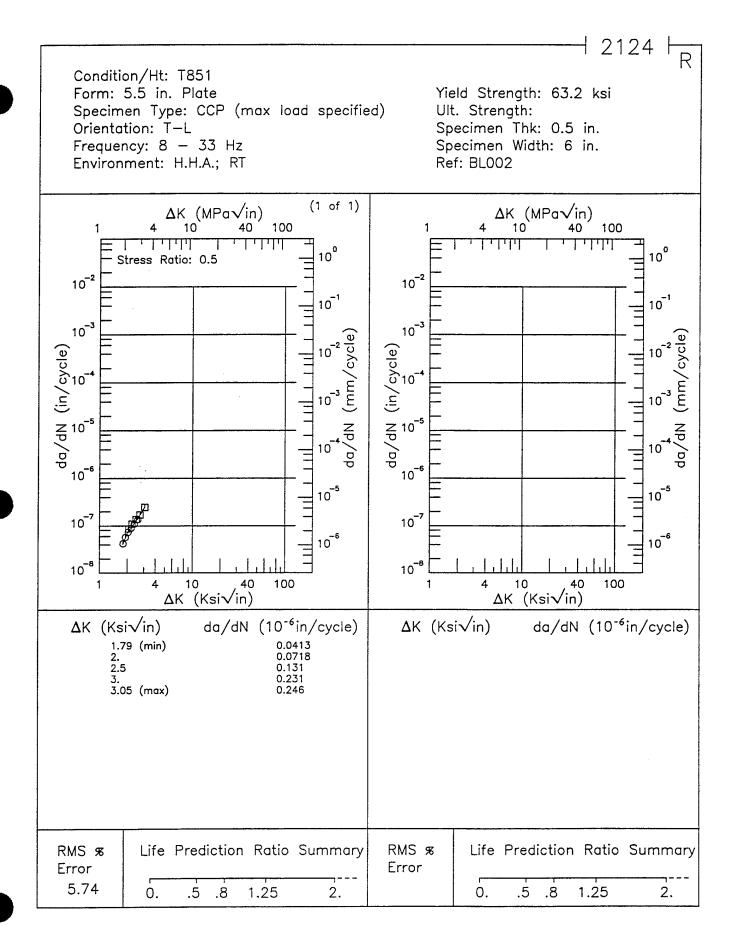


Figure 7.9.3.1.15

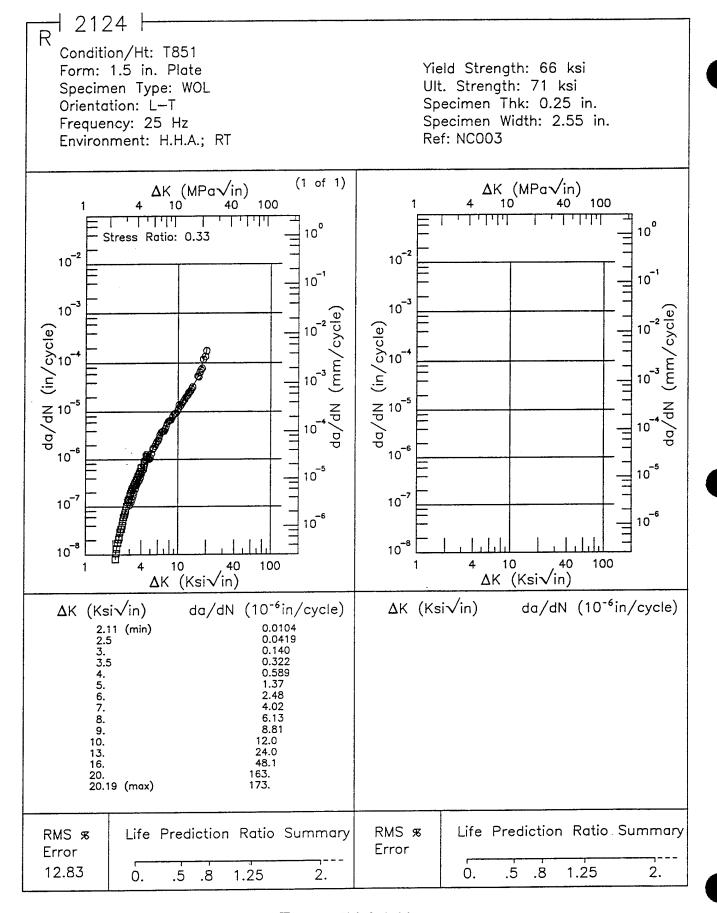


Figure 7.9.3.1.16

TABLE 7.9.3.3

K_{lsce} SUMMARY FOR ALUMINUM ALLOY 2124

	D	Test	5	Yield			Specimen	ı	Prod		:		Test		
Condition/Ht	Form	$\begin{array}{c c} 1 & \mathbf{Temp} & \mathbf{Spec} \\ 0 & (^\circ\mathbf{F}) & \mathbf{Or.} & (\mathbf{Ksi}) \end{array}$	Or.	Str (Ksi)	Envir.	Thick (in)	Design	Width (in)	Thk (in)	Crack (in)	n) (Ksivin)	K _{lace} (Ksi√in)	Time (min)	Test Date	Reference
						1	DCB	5.5	æ	1	41	27.8	70320	1976	R1006
			£	ų	G m tir	1	DCB	99	8		1‡	26.7	70320	1976	R1006
				3		-	DCB	5.5	8	1	41	>26	00809	1976	RIOGE
T851	Ω	Ω E					DCB	5.5	8	•	41	25.2	54360	1976	RIOG
1001	4	; ;		-,		1	DCB	5.5	3		40	>25	51720	1976	RI006
			ַם	c d	W W O	1	DCB	5.5	3	+	40	21	54360	1976	RI006
			7-2	S	ν.Τ.α	1	DCB	5.5	3		40	97	130620	1976	RI006
						-	DCB	5.5	အ	ï	40	21	54360	1976	RI006

TABLE 7.10.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS FOR ALUMINUM 2000/6000 SERIES ALLOY 2214 AT ROOM TEMPERATURE

Product		-			K_{Ic}	$K_{Ic}~(ksi\sqrt{in})$	<u>a</u>)			
Form	Condition/Heat Treatment			3	Specimen Orientation	n Orie	ntation			
			L-T			T-L			T-S	
		Mean K _{le}	Std Dev	a	Mean K _{te}	Std Dev	ч	Mean K _{le}	Std Dev	ជ
ā	T651	35.3	2.7	11	31.8	6.0	10	÷	i	:
Flate	T651 (417)	36.	3.4	10	29.4	1.8	15	26.6	1.8	2

TABLE 7.10.2.1

					ALU	ALUMINUM	[2214	4 K _I							
	PROI	PRODUCT				8	SPECIMEN	z	CRACK			¥ Is			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (in.)	THICK (in.) B	DESIGN	LENGTH (in.)	2.6 * (K, TYS)* (in.)	K. (Keivin.)	K, MBAN	BTAN	DATE	REFER
		1.75			64.1	2.000	1.002	NB	0.963	0.75	35.10			1973	86213
		1.75			64.1	2.000	1.002	NB	1.007	0.70	33.90	,		1973	86213
		1.75			64.1	2.000	1.001	NB	0.955	0.70	34.00			1973	86213
		1.76			64.3	2.000	1.002	NB	0.935	99'0	32.80			1973	86213
		1.75			64.3	2.000	1.002	NB	0.965	0.63	32.40			1973	86213
1651	Plate	1.75	R.T.	1-1	64.3	2.000	1.002	NB	0.942	0.60	31.50	35.3	2.7	1973	81298
		1.50			0.99	3.000	1.500	CT	1.638	0.80	37.30		i	1973	86213
		1.50			66.0	3.000	1.500	CT	1.606	0.83	38.00			1973	86213
		2.37		1	66.2	4.000	1.999	CT	1.977	0.70	35.00			1973	86213
		1.50		1	66.4	3.000	1.499	CT	1.628	0.84	38.50			1973	86213
		1.50			66.4	3.000	1.500	Ċ	1.602	0.90	39.90			1973	86213
		1.75			63.1	2.000	1.002	88	0.985	0.67	32.70			1973	86213
		1.75			63.1	2.000	1.001	S.	0.966	99.0	32.20			1973	86213
		1.75			63.1	2.000	1.001	88	1.048	0.67	32.60			1973	86213
		1.75			63.2	2.000	1.001	NB NB	0.967	0.67	30.30	,		1973	86213
FASE	Ę	1.76	E	1	63.2	2.000	1.002	NB	1.033	0.64	32.00			1973	86213
1001	LINIG	1.75	 E	3	63.2	2.000	1.001	æ	1.035	0.62	31.40	31.8	6.0	1973	86213
		1.50		!	64.9	3.000	1.500	CT	1.576	0.58	31.20			1973	86213
		1.60			64.9	3.000	1.499	CŢ	1.567	0.56	30.60			1973	86213
		1.50			65.2	3.000	1.500	Ę	1.597	0.64	32.90			1973	86213
		1.50			65.2	3.000	1.500	CI	1.589	09:0	31.90			1973	86213

TABLE 7.10.2.1 (CONTINUED)

					ALU	ALUMINUM	l 2214	4 K _{Io}							
	PROI	PRODUCT				S	SPECIMEN	z	CRACK			⊼, s,			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIRLD STR (Kel)	WIDTH (In.)	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 • (K _{k.,} TYS) ¹ (in.)	K. (Keivin.)	K. MBAN	STAN	DATE	REFER
		1.50	,	I	62.7	1.000	0.500	CT	0.483	0.33	22.90			1973	86213
, and a	Ē	1.60	à		62.7	1.000	0.500	CT	0.495	0.39	24.90			1973	86213
1651	Plate	1.50	2		64.6	0.990	0.500	CT	0.492	0.33	23.30	24.0	:	1973	86213
		1.60			64.6	1.000	0.500	cr.	0.485	0.37	25.00			1973	86213
		2.00	.,,	h	63.9	3.000	1.500	cr	1.560	0.85	37.20			1973	86213
		2.00			63.9	3.000	1.500	CT	1.586	0.89	38.20			1973	86213
		3.00			64.8	3.000	1.500	CT	1.584	0.79	36.50			1973	86213
		1.76			64.9	3.000	1.501	CT	1.533	1.15	44.10			1973	86213
(1) Page	Ē	2.37	Ę		66.2	4.000	1.998	CT	2.046	0.71	35.30			1973	86213
(417)	riare	2.26		<u>-</u>	66.3	4.000	1.998	CT	2.123	0.68	34.70	36.0	3.4	1973	86213
		3.93			66.3	3.000	1.500	CT	1.464	99.0	33.80			1973	86213
		2.25			6.99	4.000	1.998	СŢ	2.021	0.67	34.40			1973	86213
-		3.93			66.3	3.000	1.601	cr	1.444	0.60	32.60			1973	86213
		2.25			66.5	4.000	1.998	ÇŢ	2.047	0.62	33.00			1973	86213
		3.00			62.6	3.000	1.500	cr	1.540	0.49	27.70			1973	86213
		3.00			62.6	3.000	1.601	CT	1.549	0.53	28.90			1973	86213
		2.00			63.2	3.000	1.501	CT	1.592	0.67	30.10			1973	86213
		2.00			63.2	3.000	1.501	CT	1.568	0.56	29.60			1973	86213
T651 (417)	Plate	1.50	R.T.	T.L	63.6	3.000	1.501	cr	1.598	0.58	30.60	29.4	1.8	1973	86213
		1.50			63.6	3.000	1.491	C.	1.606	0.62	31.60			1973	86213
		2.25			64.2	4.010	1.999	cr	2.122	0.47	27.90	 ,		1973	86213
		1.76			64.2	3.000	1.500	CT	1.623	0.63	32.30			1973	86213
		2.25			64.2	4.000	1.999	CT	2.141	0.43	26.60			1973	86213

TABLE 7.10.2.1 (CONTINUED)

					ALU	ALUMINUM	1 2214	14 K _{Io}							
	PROI	PRODUCT				62	SPECIMEN	Z	CRACK			K _{Io}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YTELD STR (Kel)	WIDTH (In.) W	THICK (in.)	DESIGN	LENGTH (in.) A	2.5 * (K _{ke} /TYE)* (in.)	K. (Kelvin.)	K. MEAN	STAN	DATE	REFER
		2.25			64.2	4.000	1.999	СT	2.126	0.46	27.40			1973	86213
		2.25		-	64.2	4.000	1.998	CT	2.179	0.48	28.00			1973	86213
T651 (417)	Plate	2.37	R.T.	T.L	64.7	4.000	1.999	CT	2.093	0.48	28.40			1973	86213
Cont'd	Cont'd	2.37	Cont'd	Cont'd	64.7	4.000	1.998	CT	2.150	0.48	28.40	Cont'd	Cont'd	1973	86213
		3.93			64.9	3.000	1.501	CT	1.484	0.58	31.30			1973	86213
		3.93			64.9	3.000	1.500	ст	1.484	09:0	31.70			1973	86213
7261 (412)	g et a	3.00	E		69.8	2.000	1.001	CT	0.962	0.45	25.30			1973	86213
(111) 1001	Links	3.93	i i	3	61.0	3.000	1.500	CT	1.532	0.62	27.90	26.6	1.8	1973	86213
		1.60			59.2	1.000	0.499	CT	0.486	0.41	24.00			1973	86213
		1.60			69.2	1.000	0.500	CT	0.486	0.39	23.30			1973	86213
		3.00		L	69.8	1.000	0.500	CŢ	0.490	0.32	21.30			1973	86213
		3.00			69.8	1.000	0.498	CT	0.491	0.32	21.30			1973	86213
		1.50		-	60.0	1.000	0.500	CT	0.479	0.35	22.60			1973	86213
19851 (213)	50	2.00	S	t	0.09	1.000	0.501	СŢ	0.474	0.29	20.50			1973	86213
	Pin i	1.76	3	3	60.0	1.000	0.499	G.	0.480	0.34	22.00	22.8	1.3	1973	86213
		1.50			60.0	1.000	0.500	CT	0.490	0.38	23.50			1973	86213
		2.00			60.0	1.000	0.501	CT	0.477	0.38	23.40			8261	86213
		2.00			60.2	1.000	0.500	CT	0.479	0.39	23.70			1973	86213
		1.76			61.1	1.000	0.501	cr	0.475	0.39	24.00			1973	86213
		1.75			61.1	1.000	0.499	ct	0.471	0.40	24.50			1973	86213

TABLE 7.10.2.1 (CONCLUDED)

DATE REFER						
		1973	1973	1973 1973 1973		
	_					
			<u> </u>		<u> </u>	° %
		24.40	24.40	24.40 24.30 22.00	24.40 24.30 22.00 26.00	24.40 24.30 22.00 26.00 22.30
		0.37	0.37	0.37	0.37	0.37 0.29 0.29 0.41
		0.757	0.757	0.757 0.770 0.782	0.757 0.770 0.782 0.784	0.757 0.770 0.782 0.734
	1	CT	cT	CT CT CT	cr cr cr	CT CT CT CT
		0.749	0.749	0.749 0.749 0.750	0.749 0.749 0.750 0.749	0.749 0.749 0.750 0.750
	:	1.500	1.500	1.500	1.500 1.500 1.500	1.600 1.600 1.600 1.600
	;	63.4	63.4	63.4 64.5	63.4 63.4 64.5 64.5	63.4 63.4 64.5 64.5 65.3
					S.L.	Je
					80	80 47
	,	2.25	2.25	2.25	2.25 2.25 2.37	2.25
					Flate	Plate
					T661 (417)	T651 (417)
	63.4 1.500 0.749 CT 0.757 24.40 1973		63.4 1.600 0.749 CT 0.770 0.37 24.30 1973	2.25 63.4 1.500 0.749 CT 0.770 0.37 24.30 1973 2.37 64.5 1.500 0.760 CT 0.782 0.29 22.00 1973	2.25 Fig. 63.4 1.500 0.749 CT 0.770 0.37 24.30 1973 1973 1973 Fig. 84 S.L 64.5 1.500 0.749 CT 0.734 0.41 26.00 23.7 1.5 1973	2.25 84 8-L 64.5 1.500 0.749 CT 0.770 0.37 24.30 1973 1973 Plate 2.37 84 8-L 64.5 1.500 0.760 CT 0.734 0.29 22.00 23.7 1.67 1973 2.25 65.3 1.500 0.760 CT 0.734 0.41 26.00 23.7 1.6 1973

TABLE 7.11.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS FOR ALUMINUM 2000/6000 SERIES ALLOY 2219 AT ROOM TEMPERATURE

Product					K_{Le}	$K_{Ic}~(ksi\!\sqrt{in})$	<u> </u>			
Form	Condition/Heat Treatment			Sa	Specimen Orientation	n Orien	itation			
			L-T			T-L			S-L	
		Mean K _{te}	Std Dev	u	Mean K _{Io}	Std Dev	п	Mean K _{le}	Std Dev	u
	T851	33.4	2.3	48	29.7	3.2	78	23.	2.4	14
Plate	T87	28.	3.	9	22.	0.4	2	:	:	i
	T87-300F 100HRS	34.8	0.4	2	:	ł	i	i	i	i
	T851	1		:		:	-	25.6	3.1	85
Forging	T852	39.2	3.2	25	27.1	2.2	24	25.3	3.1	09

1 of 1

TABLE 7.11.1.2.1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2219 AT ROOM TEMPERATURE

ORIENTATION: L-T

ENVIRONMENT: Dry Air

CONDITION	PRODITICE		FREG		FC	<i>GR</i> (10	FCGR (10 ⁶ injeyele)	G	
HEAT TREATMENT	FORM	R	(Hz)		7	K Level	ΔK Level (Ksiųlin)		
				2.5	0'9	10.0	20.0	50.0	100.0
		0.08	0.1			7.1			
		0.08	1			8.48			
		0.08	1			7.62	55.01		
		0.08	в			3.44	25.65		
· ac E		0.08	в			7.72	67.01		
1001	PLAIE	0.08	8		0.48	4.35	27.58		
		0.08	в			2.98	30.89		
		0.08	63.3		0.28	4.67			
		0.3	8		0.0				
		0.5	в		0.73	8.26			
11200	מגמ מחמונשיטה	0.08	9		0.22	2.19			
10011	EAIRUDED BAK	0.3	8			6.57			
CEOH	FORGING	0.33	2-20			4.28	37.62		
1002	BILLET	0.08	8			2.35			

1 of 1

TABLE 7.11.1.2.3

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK

2219 AT ROOM TEMPERATURE	2219 AT ROOM TEMPERATURE	OOM TEM	PERAT	URE					
ORIENTATION: L-T	1: L-T		, 14	ENVIRONMENT: F.C.S.	NMEN	T: F.C	S.		
					FCC	3R (10	FCGR (10 ° injeyele)		
CONDITION/ HEAT TREATMENT	PRODUCT FORM	Ħ	FREQ (Hz)		Ī∇	K Level	ΔK Level (Ksiylin)		
				2.5	5.0	10.0	20.0	0.08	100.0
T851	PLATE	0.08	1			7.08	51.16		

TABLE 7.11.1.2.4

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2219 AT ROOM TEMPERATURE

ORIENTATION: L-T	: L-T		(E)	ENVIRONMENT: Lab Air	NMEN	T: Lab	Air		
/NOILIGNOD	PRODITICE		Oada		FC	GR (10)	FCGR (10 ⁶ in/cycle)	6)	
HEAT TREATMENT	FORM	R	(Hz)		Δ.	K Level	ΔΚ Level (Ksi√in)	(
				2.5	6.0	10.0	20.0	50.0	100.0
		.1	9			6.98			
		-1	1-20			6.68	48.49		
		-0.5	5.2			6.89			
		-0.3	9			7.01	51.71		
		-0.1	9			6.87	43.87		
		0.	5.2			8.31	53.58		
		0.	9			4.29	33.74		
T851	PLATE	0.01	3				43.24		
		0.01	9				46.17		
		0.04	1-20			4.05			
		0.05	1-20			5.18	48.49		
		0.05	1-20			3.58			
		0.05	1-20			2.47	33.87		
		0.08	8			6.19			
		0.1	1.20				44.89		

TABLE 7.11.1.2.4 (CONCLUDED)

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2219 AT ROOM TEMPERATURE

			100.0					
	e)	(50.0					
Air	FCGR (10 ⁶ infeyele)	ΔΚ Level (Ksių/in)	20.0	91.24	75.84			
T: Lab	IGR (10	K Level	10.0		7.7	10.13	12.81	17.57
ENVIRONMENT: Lab Air	FC	7	0.0		0.7			1.37
NVIRO			2.5					
E	FREG	(Hz)		9	9	1-20	1-20	9
	\$	К		0.2	0.3	0.5	0.6	0.7
L-T	PRODUCT	FORM				PLATE		
ORIENTATION:	/NOILIGNO2	HEAT TREATMENT				T851		

TABLE 7.11.1.2.5

	10.0
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1 of 1

TABLE 7.11.1.2.6

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2219 AT ROOM TEMPERATURE

ENVIRONMENT: S.T.W.

ORIENTATION: L-T

MOUNTAINON	Holidodd		Cana		FC	FCGR (10 ⁻⁶ in/cycle)	⁶ infeyeli	(2	
HEAT TREATMENT	FORM	a	(Hz)		7	ΔK Level (Ksi√in)	(Kst/in)		
				2.5	0.0	10.0	20.0	50.0	100.0
		0.08	0.1				58.37		
		0.08	1		0.63	7.5	65.76		
T861	PLATE	0.08	6			9.94	53		
		0.3	1			8.63	62.98		
		0.6	1		0.78	11.62			
T8511	EXTRUDED BAR	0.08	1			7.25			
o a contract of the contract o		0.33	20			6.28			
1 802	FORGING	0.33	20			10.18			

TABLE 7.11.1.2.7

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2219 AT ROOM TEMPERATURE

ORIENTATION: T-L

ENVIRONMENT: Dry Air

		100.0				
(2		50.0				
⁶ infeyeli	(Ksiylin)	20.0	79.78		644.02	
FCGR (10 ⁻⁶ in/cycle)	ΔK Level (Ksi√lh)	10.0	6.7	4.09	6.72	3.72
FC	Δ.	6.0				0.36
		2.6				
FREG	(Hz)		8	9	2-20	40
	H		0.08	0.08	0.33	0.33
PRODUCT	FORM		PLATE	EXTRUDED BAR	STREET STORY	FORGING
CONDITION	HEAT TREATMENT		T851	T8511	CACE	1 002

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK

ORIENTATION: T-L

ENVIRONMENT: H.H.A.

	100.0	
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	60.0	
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FCGR (10 s infeycle)	10.0 20.0	
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FREQ (Hz)		
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CONDITION/ HEAT TREATMENT		٠,
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FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2219 AT ROOM TEMPERATURE

ORIENTATION: T-L

ENVIRONMENT: S.T.W.

		100.0				
(a		50.0				
FCGR (10-8 in/cycle)	ΔK Level (Ksi√līn)	20.0	72.45		202.23	
<i>GR</i> (10	K Level	10.0	11.78	7.29	12.75	10.31
FC	4	6.0	0.95	0.64		
		2.5				
	FREQ (Hz)		1	1	2-20	20
	R		0.08	0.08	0.33	0.33
	PRODUCT		PLATE	EXTRUDED BAR		FORGING
	CONDITION/ HEAT TREATMENT		T851	T8511	Ç S C E	1862

1 of 1

TABLE 7.11.1.2.10

RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2219 AT ROOM TEMPERATURE	ENVIRONMENT: Dry Air	FCGR (10° injeyele)	ΔK Level (Kst√in)	2.5 5.0 10.0 20.0 50.0 100.0	8.09
LEVELS C		FREG	(HZ)	000	2-20
FINED ON TE	-		4	000	0.33
	S-L	PRODUCT	FORM	Particular	FORGING
FATIGUE CRACK GROWTH	ORIENTATION: S-1	NOILIANUS	HEAT TREATMENT	Pacul	7,862

TABLE 7.11.1.2.11

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR ΔK 2219 AT ROOM TEMPERATURE

ORIENTATION: S-L

ENVIRONMENT: H.H.A.

		100.0
		8
		20.0
		3
		vo
FCGR (10 ⁻⁶ in/cycle)		
73	ΔK Level (Kst√lin)	20.0
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Ψ.	7	***
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	FREQ (Hz)	 -
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	PRODUCT FORM	FORGING
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	CONDITION/ HEAT TREATMENT	S 50
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1 of 1

TABLE 7.11.1.2.12

2219 AT ROOM TEMPERATURE	2219 AT ROOM TEMPERATURE	OM TEN	IPERATUR	E		, 	
ORIENTATION: S-L	: S-L	•	EN	ENVIRONMENT: S.T.W.	NT: S.T.V	ν.	
				FC	FCGR (10 ⁻⁶ in/cycle)	in/cycle)	
CONDITION/	PRODUCT	В	FREQ				
THE PROPERTY OF THE PROPERTY O	i Omir		(711)	7	Δ <i>K Level (Ksi</i> ylin)	$Ksi\sqrt{in}$	
			2	2,5 5.0	10.0	20.0 50.0	0 100.0
T862	FORGING	0.33	2-20		19.63	-	

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK

	2219 AT ROOM TEMPERATURE	OOM TEN	MPERAT	URE					
ORIENTATION: Unspecified	specified		교	NVIRO	NMEN	ENVIRONMENT: Lab Air	Air		
	!! ! ! !				FC	FCGR (10.5 th/cycle)	⁶ tr/cycl	9	
CONDITION/ HEAT TREATMENT	FRODUCI	æ	FREG (Hz)		Δ	ΔK Level (Kst√lin)	(Ksiyin	(
				2.5	5.0	10.0	20.0	0.00	100.0
		.1	2			4.31	29.14		
		0.1	5		0.48	7.07			
T851	Unspecified	0.3	30		0.7	6.81			
		0.5	30			8.29			
		0.8	5	0.12	3.08				

TABLE 7.11.2.1

																									
		REFER	86213	90011	MPC01	MPC01	MPC01	86213	86213	86213	86213	86213	86213	MPC01	MPC01	86213	86213	MPC01	86213	MPC01	MPC01	MPC01	MPC01	MPC01	86213
		DATE	1973	1974	1978	1978	1978	1973	1973	1973	1973	1973	1973	1978	1978	1973	1973	1978	1973	1978	1978	1978	1978	1978	1973
		STAN	1												2.3										
	$\mathbf{K}_{\mathbf{I}\mathbf{c}}$	K. MEAN	ı							-					33.4										
		K. (Krivin.)	34.70	35.00	36.50	36.90	37.10	35.90	36.50	35.90	38.10	35.90	35.80	31.30	31.30	38.10	34.50	30.40	34.80	30.90	31.80	34.90	30.70	31.20	34.20
		9.6 * (K _{t.,} TYS)* (in.)	1.00	1.22	1.29	1.33	1.36	1.28	1.33	1.28	1.46	1.28	1.28	0.83	0.83	1.40	1.14	0.87	1.16	0.87	0.83	1.12	0.87	0.90	1.08
		LENGTH (in.)	1.612	ţ	2.623	2.090	3.068	2.703	2.623	2.090	3.137	2.680	2.095	1.518	1.521	1.600	1.520	1.519	1.550	1.562	1.674	2.594	1.481	1.547	2.567
9 K _{Ic}	z	DESIGN	NB	Ç	CI	CT	CT	cr	СТ	CT	CT	СT	CT	CT	CT	NB	NB	CT	NB	CT	CT	СŢ	ÇŢ	CT	CT
2219	SPECIMEN	THICK (in.) B	1.405	2.000	1.503	1.999	1.998	1.987	1.503	1.999	1.999	2.000	1.998	1.374	1.374	1.420	1.420	1.374	1.420	1.500	1.500	1.750	1.376	1.376	1.498
ALUMINUM	SPE	WIDTH (In.)	3.000	8.000	5.044	4.019	6.016	5.010	5.010	4.000	6.000	6.010	4.000	2.977	2.982	3.000	3.000	2.978	3.000	3.004	3.027	4.989	3.022	2.975	6.000
ALUI	YIBLD WI (GKel)			60.0 8 60.1 4 60.1 4 60.1 6 60.1 6 60.1 6 60.1 6 60.1 6 60.1 6 60.1 6 61.0 2 61.0 2 61.0 3 61.0 3 61.0 3 61.0 3 61.0 3 61.0 3 61.0 3 61.0 3 61.0 3 61.0 3 61.0 3 61.0 3																					
		SPEC	T:L		1		1				1		1	E	<u>.</u>			-							
		TEST TEMP (°F)	-112		-									ŧ	<u>:</u>										
	PRODUCT	THICK (in.)	1.37	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.37	1.37	1.37	1.37	1.37	1.37	2.62	2.62	3.25	1.37	1.37	3.00
	PROI	FORM	Plate											Ē	Figure										
		CONDITION	T851											Ě	1001							_			

SPEC STR (In.) OR (Kel) WIDTH (Kel) W 62.0 5.000 62.4 3.026	-		•	SPECIMEN	Z							
TEST TEMP (°F)			-			CRACK			\mathbf{K}_{Io}			
***		YIELD STR (Kal)	WIDTH (in.) W	THICK (in.)	DESIGN	LENGTH (in.) A	2.6 • (K _e ,TYS) ² (in.)	K. (Kelvin.)	K. MEAN	STAN	DATE	REFER
		62.0	6.000	1.498	CT	2.566	1.20	36.00			1973	86213
		52.4	3.026	1.499	CT	1.543	0.99	33.20			1978	MPC01
-		62.4	2.996	1.499	GT.	1.558	96.0	32.80		<u></u>	1978	MPC01
		52.4	3.022	.1.500	CT	1.632	96.0	32.80			1978	MPC01
		62.6	2.977	1.499	CT	1.548	1.02	33.80			1978	MPC01
		52.6	2.987	1.499	CT	1.553	1.02	33.80			1978	MPC01
		52.5	4.987	2.603	CT	2.743	1.02	33.60			1978	MPC01
		62.6	4.973	2.000	СT	2.586	0.99	33.40			1978	MPC01
		62.6	4.962	1.751	CT	2.630	0.84	30.80			1978	MPC01
		62.8	4.987	2.001	cr	2.593	0.90	31.80	•		1978	MPC01
	LT	63.0	5.045	2.000	cr	2.573	0.90	32.20	***************************************		1978	MPC01
	Cont'd	63.0	3.027	1.603	CT	1.665	0.81	30.70	Cont'd	Cont'd	1978	MPC01
		63.4	6.010	1.997	CT	2.672	0.87	31.50			1973	86213
		63.6	4.965	2.002	cr	2.582	0.87	31.60			1978	MPC01
		53.5	5.018	2.002	CI	2.559	0.90	32.20			1978	MPC01
		53.5	4.967	2.501	CT	2.682	0.83	32.90			1978	MPC01
		53.6	4.989	2.501	CT	2.644	0.99	33.80			1978	MPC01
		53.6	4.954	2.002	CT	2.576	96.0	33.60			1978	MPC01
		53.7	4.010	1.998	cr	2.043	0.79	30.10			1973	86213
		63.8	1.990	0.965	Ç	1.035	0.81	30.90			1978	MPC01
		63.8	1.990	0.965	CT	1.016	0.78	30.60			1978	MPC01
		53.8	2.016	0.965	<u>ნ</u>	1.008	0.78	30.60			1978	MPC01

				ALU	ALUMINUM	1 2219	9 K _{Io}							
PRODUCT	1				SZ	SPECIMEN	Z	CRACK			K _{Ie}			
THICK TH	FE	TEST TEMP (°F)	SPEC	YIELD STR (Kal)	WIDTH (in.) W	THICK (In.) B	DEBIGN	LENGTH (in.) A	2.5 * (K, TYS) ⁵ (in.)	K. (Kelvin.)	K, MBAN	STAN DEV	DATE	REFER
3.00				54.0	8.000	1.996	CT	3.991	1.03	34.70			1973	85836
2.90		R.T.	T.	54.3	4.969	2.002	CT	2.584	0.81	31.20			1978	MPC01
2.90 Cc	చ	Cont'd	Cont'd	64.3	900.9	2.501	cr	2.703	0.81	31.00	Cont'd	Cont'd	1978	MPC01
2.50				55.7	4.968	. 1.753	CT	2.633	96.0	34.60			1978	MPC01
1.37				46.2	3.000	1.402	NB	1.524	1.10	32.60			1973	86213
1.37				47.4	1.994	1.000	CT	1.017	0.93	29.20			1978	MPC01
1.76				48.0	3.000	1.608	cr	1.611	1.28	34.40			1972	84306
1.76				48.0	6.000	1.504	CT	2.615	1.48	37.00			1972	84306
1.76				48.0	6.000	1.504	CT	2.609	1.48	37.00			1972	84306
1.76				48.0	2.990	1.608	CT.	1.673	1.24	33.90			1972	84306
1.37				49.2	2.985	1.405	NB	1.582	0.81	28.20			1978	MPC01
1.37				49.2	3.016	1.402	NB	1.538	0.99	31.10			1978	MPC01
1.37		E	Ė	49.2	2.974	1.402	NB	1.487	0.99	31.30			1978	MPC01
1.37			3	49.2	2.974	1.405	NB	1.487	0.84	28.70	29.7	3.2	1978	MPC01
1.37				49.2	3.000	1.403	NB	1.526	1.09	32.50			1973	86213
1.37	_			49.2	3.008	1.403	MB	1.534	1.08	32.80			1978	MPC01
1.37				49.2	2.991	1.402	NB	1.585	1.08	32.80			1978	MPC01
1.37				49.2	3.000	1.405	NB	1.535	0.94	30.20			1973	86213
3.25				49.2	4.977	1.750	CT	2.638	0.84	28.90			1978	MPC01
1.37				49.2	3.000	1.405	NB	1.634	0.92	29.90			1973	86213
1.37				49.2	3.000	1.402	RN NB	1.584	1.10	32.70			1973	86213
1.37				49.2	3.000	1.402	eg BB	1.605	1.16	33.50			1973	86213

PRODUCT Part						ALU	ALUMINUM	[2219	9 K _{Io}							
Pority Tight Tight Tight Thirty Thir		PRO	DUCT				82	PECIME	z	1			K _{Ie}		,	
1.36 1.36 1.30	CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YTELD STR (Kel)	WIDTH (In.)	THICK (ln.) B	DEBIGN		2.6 * (K _{e.,} TYB)* (in.)		K. MBAN	BTAN DEV	DATE	REFER
1.37			1.87		'	49.3	2.973	1.000	cr	1.546	0.90	29.70			1978	MPC01
137 483 5.020 1.000 CT 1.656 0.66 50.80 137 483 5.020 1.000 CT 1.651 0.50 228.0 137 483 2.000 0.876 CT 1.007 0.78 27.90 138 483 2.000 1.000 CT 1.673 0.87 228.0 138 R.T. T.L. 493 2.000 1.000 CT 1.673 0.87 228.0 138 R.T. T.L. 493 2.000 1.000 CT 1.673 0.87 228.0 138 R.T. T.L. 493 2.000 1.200 CT 1.673 0.87 228.0 138 R.T. 493 2.000 1.200 CT 1.673 0.87 228.0 138 R.T. 493 2.000 1.200 CT 1.673 0.87 228.0 138 R.T. 493 2.000 1.200 CT 1.673 0.87 228.0 138 R.T. 493 2.000 1.200 CT 1.673 0.89 228.0 138 R.T. 493 2.000 1.200 CT 1.683 0.80 228.0 148 R.T. 493 2.000 1.200 CT 1.683 0.80 228.0 149 R.T. 483 2.000 1.200 CT 1.683 0.80 228.0 149 R.T. 480 C.T. 1.683 0.80 0.87 2.880 149 R.T. 480 C.T. 1.683 0.80 0.80 0.80 140 R.T. 480 C.T. 1.683 0.80 0.80 0.80 150 R.T. 480 C.T. 1.683 0.80 0.80 0.80 150 R.T. 480 C.T. 480 C.T. 480 C.T. 480 150 R.T. 480 C.T. 480 C.T. 480 C.T. 480 150 R.T. 480 C.T. 480 C.T. 480 C.T. 480 150 R.T. 480 C.T. 480 C.T. 480 C.T. 480 150 R.T. 480 C.T. 480 C.T. 480 C.T. 480 150 R.T. 480 C.T. 480 C.T. 480 1			1.38			49.3	3.000	1.380	cr	1.538	0.88	29.30			1972	82880
1.57			1.37		.	49.3	2.990	1.000	cr	1.565	96.0	30.80			1978	MPC01
1.37			1.37		<u>+</u>	49.3	3.002	.1.000	CT	1.561	0.90	29.80			1978	MPC01
1.37			1.37			49.3	2.000	0.875	CT	1.020	0.81	28.30			1978	MPC01
1.37			1.37			49.3	2.014	0.875	СТ	1.007	0.78	27.90			1978	MPC01
1.38			1.37			49.3	2.975	1.126	CT	1.547	0.87	29.50			1978	MPC01
Hate 1.38 R.T. T.L. 49.3 2.000 1.000 CT 1.082 0.77 27.40 Cont.4 1.37 Cont.4 49.3 2.000 1.380 CT 1.082 0.77 27.40 Cont.4 1.37 Cont.4 49.3 2.000 1.380 CT 1.086 0.84 28.70 Cont.4 1.37 Cont.4 49.3 2.002 1.380 CT 1.086 0.84 28.70 Cont.4 1.37 49.3 2.002 1.380 CT 1.086 0.84 28.30 Cont.4 1.37 49.3 3.000 1.380 CT 1.085 0.80 28.70 1.380 CT 1.089 CT 1.089 0.77 27.40 1.380 1.380 CT 1.081 0.77 27.40 1.380 1.380 0.390 0.			1.38			49.3	2.000	1.000	\mathbf{cr}	1.067	0.79	27.70			1972	82880
Hate 1.38 R.T. T.L. 49.3 3.000 1.380 CT 1.082 0.77 27.40 Cont.d. 1.39 Cont.d. 49.3 2.000 1.380 CT 1.026 0.84 28.70 Cont.d. 1.39			1.37			49.3	3.025	1.125	CT	1.673	0.87	29.30			1978	MPC01
Plate Light R.T. Light T.L. Gont'd Light 49.3 (0.047) 1.380 (0.047) CONT'd Light 49.3 (0.047) 1.380 (0.047) CONT'd Light 49.3 (0.047) 1.380 (0.047) CONT'd Light 28.00 CT (0.047) 1.07 (0.049) 28.00 CONT'd Light			1.38			49.3	2.000	1.000	CT	1.082	0.77	27.40			1972	82880
Contd L37 Contd 49.3 2.012 0.875 CT 1,026 0.84 28.70 Contd 1.38 49.3 40.00 2.001 CT 1,077 32.30 Contd CT 1,655 0.84 28.90 Contd Contd Contd 1.89 CT 1,655 0.84 28.90 Contd C	1861	Plate	1.38	R.T.	T.L	49.3	3.000	1.380	CT	1.667	0.86	28.90			1972	82880
49.3 4.000 2.001 CT 2.077 1.07 32.30 49.3 3.000 1.380 CT 1.555 0.86 28.80 49.3 1.494 0.760 CT 0.792 0.67 25.80 49.3 3.006 1.125 CT 1.663 0.90 29.70 49.3 2.000 1.000 CT 1.069 0.77 27.40 49.3 2.004 1.000 CT 1.042 0.75 27.40 49.7 2.010 1.000 CT 1.042 0.75 27.40 49.7 2.010 1.000 CT 1.042 0.75 27.40 49.7 2.010 1.000 CT 1.042 0.84 29.10 50.0 5.004 0.599 CT 1.042 0.81 28.60	Cont'd	Cont'd	1.37	Contd	Cont'd	49.3	2.012	0.875	cr	1.026	0.84	28.70	Cont'd	Cont'd	1978	MPC01
49.3 3.000 1.380 CT 1.655 0.86 28.90 49.3 1.494 0.750 CT 0.792 0.67 25.80 49.3 3.006 1.125 CT 1.663 0.90 29.70 49.3 2.000 1.000 CT 1.663 0.77 27.40 49.3 4.000 1.899 CT 2.085 1.06 27.40 49.7 2.004 1.000 CT 1.042 0.76 29.10 49.7 2.010 1.000 CT 1.045 0.84 29.10 49.7 2.010 1.000 CT 1.045 0.84 29.10 50.0 2.004 0.999 CT 1.042 0.81 29.60 50.0 5.000 1.500 CT 1.30 38.00			3.00			49.3	4.000	2.001	CT	2.077	1.07	32.30	,		1973	86213
49.3 1.494 0.750 CT 0.792 0.67 25.80 49.3 3.006 1.125 CT 1.663 0.90 29.70 49.3 2.000 1.000 CT 1.069 0.77 27.40 49.3 4.000 1.999 CT 2.086 1.06 32.00 49.7 2.004 1.000 CT 1.042 0.75 27.40 49.7 2.010 1.000 CT 1.045 0.84 29.10 49.7 2.004 0.999 CT 1.042 0.81 29.60 50.0 5.000 1.500 CT 1.042 0.81 28.60			1.38			49.3	3.000	1.380	CT	1.565	0.86	28.90			1972	08878
49.3 3.006 1.125 CT 1.653 0.90 29.70 49.3 2.000 1.000 CT 1.669 0.77 27.40 49.3 4.000 1.999 CT 2.085 1.06 32.00 49.7 2.004 1.000 CT 1.042 0.75 27.40 49.7 2.010 1.000 CT 1.045 0.84 29.10 49.7 2.004 0.999 CT 1.042 0.81 28.60 50.0 5.000 1.500 CT 1.042 0.81 28.60			1.37			49.3	1.494	0.750	CT	0.792	0.67	25.80			1978	MPC01
49.3 2.000 1.000 CT 1.069 0.77 27.40 49.3 4.000 1.999 CT 2.085 1.06 32.00 49.7 2.004 1.000 CT 1.042 0.75 29.10 49.7 2.010 1.000 CT 1.045 0.84 29.10 50.0 5.004 0.999 CT 1.042 0.81 28.60 50.0 5.000 1.500 CT 1.30 38.00			1.37			49.3	3.006	1.125	CT	1.563	0.90	29.70			1978	MPC01
49.3 4.000 1.999 CT 2.085 1.06 32.00 49.7 2.004 1.000 CT 1.042 0.75 27.40 49.7 2.004 0.999 CT 1.046 0.84 29.10 50.0 5.004 0.999 CT 1.042 0.81 28.60 50.0 5.000 1.500 CT 1.30 38.00			1.38			49.3	2.000	1.000	ರ	1.069	0.77	27.40			1972	82880
49.7 2.004 1.000 CT 1.042 0.75 27.40 49.7 2.010 1.000 CT 1.045 0.84 29.10 49.7 2.004 0.999 CT 1.042 0.81 28.60 50.0 5.000 1.500 CT 1.30 38.00			3.00			49.3	4.000	1.999	cr	2.086	1.06	32.00			1973	86213
49.7 2.010 1.000 CT 1.045 0.84 29.10 49.7 2.004 0.999 CT 1.042 0.81 28.60 50.0 5.000 1.500 CT 1.30 36.00			1.37			49.7	2.004	1.000	ಕ	1.042	0.76	27.40			1978	MPC01
49.7 2.004 0.999 CT 1.042 0.81 28.60 50.0 5.000 1.500 CT 1.30 36.00			1.37			49.7	2.010	1.000	CT	1.046	0.84	29.10			1978	MPC01
50.0 5.000 1.500 CT 1.30 36.00			1.37			49.7	2.004	0.999	cī	1.042	0.81	28.60			1978	MPC01
			2.00			50.0	6.000	1.500	CT	:	1.30	36.00			1974	90011

					ALU	ALUMINUM	[2219	9 K _{Io}							
	PRO	PRODUCT				i i i	SPECIMEN	7.	CRACK			K _{Io}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kei)	WIDTH (in.)	THICK (In.)	DESIGN	LENGTH (in.) A	2.5 • (K _m ,TYS) ³ (in.)	K. (Kelvin.)	K. MEAN	BTAN DEV	DATE	REFER
		3.00			60.0	8.000	2.000	CT	1	1.15	34.00			1974	90011
		2.00			60.0	6.000	1.500	CT		1.15	34.00			1974	90011
-		3.25	•	1	50.1	4.969	1.750	CT	2.628	0.81	28.80			1978	MPC01
		3.00			50.6	3.000	1.498	CT	1.550	0.72	27.20			1973	86213
		3.00			9.09	6.000	1.497	CT	2.682	0.82	28.90			1973	86213
		3.00		1	50.6	3.000	1.498	CT	1.650	0.71	26.90			1973	86213
******		3.00		!	60.6	6.000	1.497	СT	2.575	0.80	28.60			1973	86213
		1.37			60.8	3.026	1.375	CT	1.543	0.78	28.80			1978	MPC01
		1.37			50.8	3.000	1.420	NB	1.500	0.81	29.00			1978	MPC01
		1.37			60.8	2.980	1.420	NB	1.520	0.93	31.40			1978	MPC01
1851	Plate	1.37	R.T.	12.	60.8	2.981	1.420	NB	1.550	1.29	36.60			1978	MPC01
Cont'd	Cont'd	1.37	Contd	Cont'd	50.8	2.973	1.376	CT	1.546	0.72	27.50	Cont'd	Cont'd	1978	MPC01
		1.37			60.8	3.000	1.420	NB	1.560	1.06	33.30			1978	MPC01
		1.00		1	51.2	1.993	0.965	CT	1.096	0.75	28.40			1978	MPC01
		1.00			51.2	2.013	0.963	СT	1.067	0.78	28.90	•		1978	MPC01
		1.00			51.2	1.986	0.964	CT	1.013	0.72	28.00			1978	MPC01
		2.90		'	61.6	2.991	1.249	СT	1.646	0.78	29.40			1978	MPC01
		2.90			51.8	4.993	2.501	CT	2.696	0.70	27.90			1978	MPC01
		2.90		t	61.8	4.975	2.002	CT	2.587	0.62	26.20			1978	MPC01
		2.90			61.9	3.030	1.504	CT	1.697	0.66	26.80			1978	MPC01
		2.90			61.9	5.017	2.002	CT	2.609	0.70	27.60			1978	MPC01
		2:90			62.0	4.996	2.002	CT	2.598	0.72	28.20			1978	MPC01

5 of 20

				l)	ALO L	ALUMINUM		N _{Io}							
_	PROI	PRODUCT		****		5 2	SPECIMEN	Z	CRACK			K _{Ic}			
CONDITION	FORM	THICK (in.)	TEST TEMP (*F)	SPEC	STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (In.) A	8.5 • (K. TYS)* (in.)	K. (Kelvin.)	K. MEAN	BTAN DEV	DATE	REFER
		2.90			62.0	5.033	2.002	CT	2.617	0.65	27.00			1978	MPC01
		2.90			62.0	5.013	2.501	СŢ	2.657	0.70	28.00			1978	MPC01
		į			62.0	7.990	1.992	CT	4.067	1.06	33.70			1973	85836
		2.90			62.2	5.008	. 2.002	CT	2.604	0.75	28.90			1978	MPC01
		3.00			52.5	4.010	1.998	CT	2.083	0.81	29.90			1973	86213
		3.00			62.7	6.000	1.999	CT	2.672	06:0	31.70			1973	86213
		2.90		1	62.8	4.985	2.500	CT	2.692	09:0	26.00			1978	MPC01
T851	Plate	2.90	E.T.	T:I	62.8	5.006	2.002	ст	2.603	0.67	27.50			1978	MPC01
Cont'd	Cont'd	2.90	Cont'd	Cont'd	53.1	5.000	2.001	CT	2.650	0.67	28.00	Cont'd	Cont'd	1978	MPC01
		2.90		L	63.1	6.029	2.504	CT	2.766	0.70	28.30			1978	MPC01
		2.50			65.6	4.987	1.751	CT	2.643	09:0	27.30			1978	MPC01
		1.37			66.0	2.004	1.000	cr	1.042	0.93	34.30			1978	MPC01
		1.37			66.0	1.998	0.999	СŢ	1.039	0.93	34.50			1978	MPC01
		3.00			0.09	2.000	1.000	СT	1.024	0.32	21.40			1973	85836
		3.00			60.0	2.000	1.002	cr	1.013	0.29	20.40			1973	85836
		3.00			60.0	2.000	1.001	CT	0.993	0.30	20.70			1973	85836
		3.00			60.0	2.000	0.870	CT	i	0.62	25.00		·	1974	90011
	i	2.90	i	į	62.3	1.982	1.001	CT	0.991	0.38	20.70		• •	1978	MPC01
1851	Plate	2.90	ж ::		62.8	2.014	1.002	cr	1.047	0.38	21.00	21.7	2.3	1978	MPC01
		2.90			53.3	1.996	1.001	ಕ	1.018	28.0	20.00			1978	MPC01

		RBFER	MD001	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	86213	1000	- TAN-	MPC01	MPC01	MPC01 MPC01	MPC01 MPC01 MPC01 86213	MPC01 MPC01 MPC01 MPC01 86213	MPC01 MPC01 MPC01 MPC01 86213 86213	MPC01 MPC01 MPC01 MPC01 MPC01 86213 86213	MPC01 MPC01 MPC01 MPC01 86213 84306 84306	MPC01 MPC01 MPC01 MPC01 86213 86213 86213	MPC01 MPC01 MPC01 MPC01 86213 84306 84306 86213 86213	MPC01 MPC01 MPC01 MPC01 MPC01 86213 86213 86213 86213	MPC01 MPC01 MPC01 MPC01 MPC01 86213 86213 86213 86213 MD001	MPC01 MPC01 MPC01 MPC01 MPC01 MPC01 86213 86213 86213 86213 MD001 MD001
	-	DATE	1977	1978	1978	1978	1978	1978	1978	1973	-	1978	1978	1978 1978 1978	1978 1978 1978	1978 1978 1978 1978	1978 1978 1973 1973	1978 1978 1978 1973 1973	1978 1978 1978 1973 1972	1978 1978 1973 1972 1973	1978 1978 1978 1973 1972 1973	1978 1978 1973 1972 1973 1973 1973	1978 1978 1973 1973 1973 1973 1973 1973	1978 1978 1973 1972 1973 1973 1973 1973 1973	1978 1978 1973 1972 1973 1973 1973 1973 1973 1973
		BTAN		L	<u> </u>		<u> </u>			2.4	·								2.5	25	24 24	1.0	2.5	1.0	3 1.0 2.5 5.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0
	K _I	K, MBAN								23.0									23.0	23.0	23.0	23.0	23.0	23.0	23.0
		K. (Kelvin.)	26.12	22.00	21.70	19.80	20.20	24.00	26.60	22.60	05 50	40.00	25.40	25.40	25.40	25.40 22.10 20.80 20.40	26.40 22.10 20.80 20.40 23.70	25.40 22.10 20.80 20.40 23.70 24.80	25.40 22.10 20.80 20.40 23.70 24.80	25.40 22.10 20.80 20.40 23.70 24.80 21.20	25.40 20.80 20.40 20.40 21.20 20.20 20.20	25.40 22.10 20.80 20.40 23.70 24.80 21.20 20.20 22.40	25.40 20.80 20.40 20.40 24.80 21.20 20.20 21.20 21.50	25.40 22.10 20.80 23.70 24.80 21.20 20.20 22.40 21.50 20.60	25.40 20.80 20.80 20.40 21.20 20.20 21.20 20.20 21.50 20.60 28.58
		2.5 • (K _{t.,} TYS)* (in.)	0.67	0.46	0.44	0.38	0.38	0.52	99.0	0.47	0.65		0.57	0.67	0.44	0.57	0.44	0.67 0.44 0.38 0.38 0.51	0.57 0.38 0.38 0.51 0.62	0.67 0.44 0.38 0.51 0.62 0.45	0.57 0.38 0.38 0.51 0.62 0.45	0.67 0.38 0.38 0.51 0.62 0.45 0.46	0.57 0.38 0.38 0.51 0.62 0.40 0.46	0.67 0.38 0.38 0.51 0.62 0.45 0.46 0.46 0.46	0.67 0.38 0.38 0.51 0.62 0.45 0.46 0.46 0.39 1.16
	CRACK	LENGTH (in.) A	1.590	1.028	1.041	0.508	0.520	1.026	1.021	0.979	1.022		1.029	1.029	1.029 0.504 0.505	0.504	1.029 0.504 0.505 0.979 0.960	0.604 0.604 0.979 0.960 0.965	0.604 0.604 0.805 0.865 0.865	0.604 0.604 0.879 0.960 0.966 0.896	0.504 0.504 0.905 0.965 0.965 0.895 0.508	0.604 0.604 0.8079 0.965 0.965 0.965 0.608	0.504 0.504 0.960 0.965 0.895 0.508 0.506	0.604 0.604 0.979 0.965 0.965 0.965 0.608 0.608 0.606	0.504 0.504 0.960 0.965 0.895 0.504 0.505 0.496 1.563
9 К г	2	DESIGN	CI.	CT	៦	CT	cr	CT	CT	CT	ដ		CT	CT CT	CT CT	77 77 77	77 CT	5 5 5 5 5	5 5 5 5 5 5	5 5 5 5 5 5	5 5 5 5 5 5 5	5 5 5 5 5 5 5	5 5 5 5 5 5 5 5	5 5 5 5 5 5 5 5 5	5 5 5 5 5 5 5 5 5 5
I 2219	SPECIMEN	THICK (in.)	1.500	1.000	1.000	0.500	0.500	1.000	1.000	0.998	1.000		1.000	1.000	0.500	0.500	0.500	0.500 0.500 0.999 0.999	0.500 0.500 0.999 0.999 0.746	0.500 0.500 0.999 0.999 0.745	0.500 0.500 0.999 0.745 0.746 0.500	0.500 0.500 0.999 0.999 0.745 0.746 0.500	0.500 0.500 0.999 0.746 0.500 0.500 0.500	0.500 0.500 0.999 0.999 0.746 0.746 0.500 0.500 0.500	0.500 0.500 0.999 0.746 0.500 0.500 0.500 0.500
ALUMINUM	σά	WIDTH (in.) W	2.999	2.016	2.002	966.0	1.000	2.012	2.002	2.000	2.004		2.018	2.018	2.018 1.008 1.010	2.018 1.008 1.010 2.000	2.018 1.008 1.010 2.000 2.000	2.018 1.008 1.010 2.000 2.000 1.490	2.018 1.008 1.010 2.000 2.000 1.490	2.018 1.008 1.010 2.000 2.000 1.490 1.670	2.018 1.008 1.010 2.000 2.000 1.670 1.000	2.018 1.008 1.010 2.000 2.000 1.490 1.000 1.000	2.018 1.008 1.010 2.000 2.000 1.490 1.670 1.000 1.000	2.018 1.008 1.010 2.000 2.000 1.490 1.670 1.000 1.000 1.000	2.018 1.008 1.010 2.000 2.000 1.490 1.670 1.000 1.000 1.000 3.001
ALC		YIELD STR (Kel)	50.2	50.5	50.5	60.6	50.6	61.8	61.8	61.9	52.0		62.0	52.0 52.3	62.9 62.3 52.3	62.0 62.3 62.3 62.6	62.0 62.3 62.3 62.6 62.6	62.9 62.3 62.6 62.6 60.0	62.3 62.3 62.6 62.6 60.0	62.3 62.3 62.6 62.6 60.0 60.0	62.3 62.3 62.6 62.6 60.0 60.0	62.3 62.3 62.8 62.6 60.0 60.0 60.0	62.9 62.3 62.6 62.6 60.0 60.0 62.3 62.3	62.3 62.3 62.6 62.6 60.0 60.0 60.0 62.3 62.3 62.3	62.3 62.3 62.6 62.6 60.0 60.0 60.0 62.3 62.3 62.3 62.3
		SPEC							5	5								E	r &	r.	7.1.8	rs 3.	1. S.	8.1.	. T. 8. T. 8
		TEST TEMP (°F)							£	į								2	2,	26	46	26 88	40 80 80	2 8	88 84 R.T.
	oucr	THICK (In.)	i	2.62	2.62	1.37	1.37	3.00	3.00	3.00	3.00		3.00	3.00	3.00	3.00 1.37 1.37 3.00	3.00 1.37 1.37 3.00	3.00 1.37 3.00 3.00 2.00	3.00 1.37 3.00 2.00 2.00	3.00 1.37 1.37 3.00 3.00 2.00 1.37	3.00 1.37 3.00 3.00 2.00 2.00 1.37 1.37	3.00 1.37 3.00 3.00 2.00 2.00 1.37 1.37	3.00 1.37 3.00 2.00 2.00 1.37 1.37 1.37	3.00 1.37 3.00 3.00 2.00 2.00 1.37 1.37	3.00 1.37 3.00 2.00 2.00 1.37 1.37 1.37
	PRODUCT	FORM	•						5	981								D	Plate	Plate	Plate	Plate	Plate	Plate	Plate Plate
	4.	CONDITION	•						247				Ar-Albarra					7.877	T861	T851	T851	T851 T851	T861	T861	T851 T851

					ALU	ALUMINUM	1 2219	9 K _{Io}							
	PRO	PRODUCT				oc.	SPECIMEN	z	CRACK			, K			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YTELD STR (Kel)	WIDTH (In.)	THICK (in.) B	DESIGN	LENGTH (In.) A	9.6 • (K _{L,} TYS) ² (in.)	K. (Kelvin.)	K, MBAN	STAN	DATE	REFER
				1	46.1	3.003	1.500	CT	1.566	1.02	29.59			1976	MD001
		ı			46.4	3.001	1.500	CT	1.580	1.16	31.58			1976	MD001
T861	Forging	i	R.T.	S.Z.	46.4	3.003	1.499	CT	1.569	1.08	30.60			1976	MD001
Cont'd	Cont'd	1	Cont'd	Cont'd	50.1	3.005	. 1.500	CT	1.418	1.13	33.71	Cont'd	Cont'd	1976	MD001
		i		1	50.1	3.005	1.500	cr	1.444	1.18	34.55			1976	MD001
		ı			60.9	1.998	1.001	CT	0.995	0.67	24.49			1976	MD001
		ı			46.2	2.997	1.495	CT	1.589	0.64	22.91			1977	MD001
		:		k	47.5	1.998	1.001	CT	1.000	0.63	23.96			1976	MD001
		i			47.5	3.001	1.502	cr	1.619	0.50	21.42			1976	MD001
		i			47.7	1.999	1.000	CT	1.003	0.71	25.50			1976	MD001
		1			47.9	2.998	1.502	CT	1.607	0.92	29.13			1977	MD001
					48.1	2.000	1.001	CT	1.059	0.73	26.01			1977	MD001
		ı			48.1	2.996	1.496	ст	1.616	0.79	27.04			1977	MD001
i i i	, ,	:	E		48.2	3.001	1.501	CT	1.665	0.51	21.78		·	1976	MD001
1001	Sugar Sugar	:		<u>.</u>	48.3	3.001	1.501	CT	1.531	0.67	25.13	26.3	2.3	1976	MD001
		1			48.4	3.000	1.501	CT	1.621	0.62	22.14			1976	MD001
		1			48.5	1.998	1.001	CT	1.047	0.86	28.50			1976	MD001
		ı			48.7	1.995	1.001	CT	1.033	0.75	26.67			1976	MD001
		ŀ			49.0	2.997	1.495	CT	1.596	0.64	24.84			1977	MD001
		:			49.2	1.996	1.001	CT	0.999	99.0	25.29			1976	MD001
		:			49.2	1.997	1.000	СT	1.031	0.56	23.35			1976	MD001
		1			50.1	1.999	0.997	CT	1.033	0.69	26.35			1977	MD001

9 of 20

					ALU	ALUMINUM	[2219	9 K _{Io}							
	PRODUCT	UCT				SC.	SPECIMEN	z	CRACK			K _{Io}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kal)	WIDTH (fn.) W	THICK (In.) B	DESIGN	LENGTH (ln.) A	2.6 * (K _{t./} IYS)* (in.)	K. (Kaivin.)	K. MEAN	STAN DEV	DATE	REFER
1851	Forging	:	R.T.	Ę.	50.4	3.000	1.501	CT	1.562	0.76	27.86			1976	100CM
Cont'd	Cont'd	;	Cont'd	Cont'd	61.9	3.000	1.501	CT	1.563	0.71	27.77	Cont'd	Cont'd	1976	MD001
		:			46.2	2.997	1.495	CT	1.643	0.67	24.00			1977	MD001
		:			46.2	2.996	. 1.495	CT	1.661	0.67	24.08			1977	MD001
		:			46.2	2.996	1.496	CŢ	1.616	0.68	24.13			1977	MD001
		i			46.2	2.996	1.495	CT	1.614	0.61	22.84			1977	MD001
		:			46.8	3.003	1.502	CT	1.556	0.62	23.40			1976	MD001
		:			46.8	3.001	1.501	cT	1.569	0.62	23.47			1976	MD001
		i			47.1	3.007	1.504	CT	1.700	0.69	24.75			1979	MD001
		i			47.7	1.999	1.001	cT	1.047	99.0	24.46			1977	MD001
		ı			47.7	1.998	1.001	CT	1.070	0.67	24.72			1977	MD001
V A GE	F	ŀ	Ė	,	47.8	3.001	1.601	CT	1.542	0.62	21.89			1976	MD001
1981	rorging	1	Α. .:	<u>.</u>	47.8	3.003	1.501	cr	1.532	0.64	24.27	26.6	3.1	1976	MD001
		1			47.9	2.997	1.601	CT	1.584	0.80	27.12			1977	MD001
		i			48.6	2.999	1.602	CT	1.617	0.77	27.14			1977	MD001
		i			48.7	1.997	1.001	CT	1.083	0.52	22.29			1976	MD001
		ł			49.0	1.997	1.001	CT	1.026	0.74	26.83			1976	MD001
		ı			49.0	1.998	1.001	CT	1.040	0.69	25.79			1976	MD001
		!			49.1	3.001	1.499	Ę.	1.675	0.77	27.41			1977	MD001
		ij			49.1	1.998	1.000	CT.	1.038	0.60	24.23			1976	MD001
		ı			49.1	1.998	1.000	CT	1.039	0.63	24.70			1976	MD001
		!			49.1	2.999	1.502	CT	1.562	1.19	33.88			1977	MD001

		ALU	ALUMINUM	A 2219	19 K _{Io}							
			92	SPECIMEN	Z.	CRACK			K 100		·	
TEST SPEC THICK TEMP OR (in.) (*F)	 	YTELD STR (Kal)	WIDTH (fn.) W	THICK (in.) B	DESIGN	LENGTH (in.)	2.5 • (K, TYS)* (in.)	K. (Kelvin.)	K, MEAN	BTAN	DATE	REFER
	 	49.1	1.998	1.001	CT	1.060	0.58	23.79			1976	MD001
	 	49.1	2.000	1.001	Ę,	1.080	0.74	26.73			1977	MD001
		49.1	1.998	0.999	ÇĪ	1.033	0.64	24.89		l	1976	MD001
	 	49.1	3.001	1.501	ÇŢ	1.586	0.58	23.84		. _	1976	MD001
		49.1	3.003	1.501	ÇŢ	1.672	0.62	24.50			1976	MD001
		49.1	1.997	1.000	ÇĪ	1.067	0.64	25.00			1976	MD001
		49.1	1.998	1.000	Ç	1.035	0.62	24.51			1976	MD001
	 	49.1	3.001	1.502	ţ	1.531	0.82	28.16			1977	MD001
		49.1	3,000	1.500	CT	1.636	0.58	23.85			1977	MD001
		49.1	1.998	1.001	ÇŢ	1.044	0.68	25.64			1977	MD001
R.T. S-L	 	49.2	2.999	1.502	CT	1.602	0.46	21.19			1976	MD001
Cont'd Cont'd	 _	49.2	3.003	1.501	CŢ	1.608	0.45	20.97	Cont'd	Cont'd	1976	MD001
	 	49.3	2.997	1.496	CT	1.592	0.92	29.96			1977	MD001
	 -	49.3	2.996	1.496	СŢ	1.633	0.83	28.54			1977	MD001
	 _	49.4	3.007	1.502	CT	1.516	0.94	30.42		انجونسيا ا	1977	MD001
	-	49.5	3.001	1.601	CT	1.535	0.58	24.00			1976	MD001
· · · · · · · · · · · · · · · · · · ·	-	49.6	3.002	1.500	CT	1.528	0.77	27.60			1976	MD001
		49.7	2.999	1.500	cr	1.595	0.80	28.16			1977	MD001
	 -	49.7	3.000	1.500	cr	1.634	0.79	28.03			1977	MD001
		49.7	3.000	1.504	CT	1.641	0.67	23.89			1978	MD001
		49.7	3.000	1.499	СŢ	1.626	0.82	28.62			1977	MD001
		49.7	3.000	1.501	5	1.586	0.63	25.12			1978	MD001

PRODUCT TABLE (MR)						ALU	ALUMINUM	I 2219	l9 K _{Ie}							
FORM		PROI	JUCT				302	PECIME	Z.	CRACK			K _{Ic}			
	CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (fn.)	THICK (in.) B	DESIGN	LENGTH (ln.) A	2.6 • (K _{1.,} TYS)* (In.)	K. (Kelvlin.)	K, MEAN	BTAN DEV	DATE	REFER
Horizon Hori			ï		-	49.8	1.996	1.001	CT	1.010	0.38	19.50			1976	MD001
This control			:			49.8	1.996	1.001	СŢ	1.040	0.43	20.75			1976	MD001
			i			49.9	1.996	1.002	CT	1.071	0.71	26.69			1976	MD001
			I			49.9	2.000	1.001	ÇŢ	1.053	0.51	22.66			1977	100CIW
			!			49.9	1.997	1.002	CT	1.065	99'0	25.79			1976	1000IW
Harman			I			49.9	1.999	1.001	CT	1.069	0.62	22.84			1977	MD001
The control			ı			60.1	3.000	1.490	CT	1.604	1.17	34.31			1979	MD001
Farging R.T. So.2 1,004 CT 1,678 0,675 23,165 1977 1978 1977 1978			1			50.1	3.000	1.499	CT	1.528	0.81	28.60			1978	MD001
Forging Contided			1			60.2	3.000	1.600	cr	1.578	0.67	24.15			1977	MD001
Forging R.T. S.L. GOAT of Country LOGGE 1.006 CT 1.608 0.446 22.17 GOAT of Log 1.600 CT 1.603 0.944 30.85 GOAT of Log 1.670 CT 1.605 0.90 30.26 1.670 H978 1.871 1.872 1.601 CT 1.601 0.506 31.300 1.871 1.871 0.566 31.300 1.601 CT 1.621 0.566 31.300 1.971 1.622 2.340 1.972 1.976			i			50.2	2.001	1.004	CT	1.008	97.0	23.66			1978	MD001
Contd Contd 60.2 3.000 1.500 CT 1.605 0.94 30.85 Contd 1978 60.2 2.998 1.499 CT 1.605 0.90 30.25 1878 1878 60.3 1.997 1.000 CT 1.691 0.59 24.51 1876 1	T861	Forging		R.T.	1.8	60.2	1.995	1.005	cr	1.038	0.48	22.17			1978	MD001
60.2 2.998 1.499 CT 1.605 0.90 30.25 1978 60.3 1.997 1.000 CT 1.631 0.56 24.51 1976 60.3 3.000 1.501 CT 1.631 0.96 32.18 1976 60.3 3.001 1.502 CT 1.079 0.56 23.90 1976 60.3 1.997 0.999 CT 1.080 0.46 21.46 1876 60.3 1.997 0.999 CT 1.046 0.46 21.62 1976 60.3 1.997 0.999 CT 1.694 1.04 32.62 1976 60.3 3.000 1.501 CT 1.664 0.46 21.62 1976 60.4 3.000 1.501 CT 1.664 0.989 29.91 1976 60.4 3.000 1.501 CT 1.666 0.989 31.60 1976	Cont'd	Cont'd		Cont'd	Cont'd	50.2	3.000	1.500	CT	1.603	0.94	30.85	Cont'd	Cont'd	1978	MD001
60.3 1.897 1.000 CT 1.091 0.59 24.51 1976 60.3 3.000 1.501 CT 1.631 0.96 31.30 1976 60.3 3.001 1.502 CT 1.620 1.02 32.18 1976 60.3 1.996 1.001 CT 1.090 0.46 21.46 1976 60.3 1.997 0.999 CT 1.046 0.46 21.62 1976 60.3 2.999 1.497 CT 1.664 1.04 32.62 1976 60.4 3.000 1.501 CT 1.666 0.88 29.91 1976 60.4 3.000 1.501 CT 1.666 0.88 29.91 1976			:			60.2	2.998	1.499	CT	1.605	0.90	30.25			1978	MD001
60.3 3.000 1.501 CT 1.681 0.96 31.30 1976 60.3 3.001 1.502 CT 1.079 0.56 23.90 1976 60.3 1.997 0.999 CT 1.080 0.46 21.46 1876 60.3 1.998 1.000 CT 1.046 0.46 21.62 1876 60.3 2.999 1.497 CT 1.646 1.04 32.62 1876 60.4 3.000 1.501 CT 1.666 0.88 29.91 1976 60.4 3.000 1.501 CT 1.666 0.88 29.91 1976			1			60.3	1.997	1.000	CT	1.091	0.59	24.51			1976	MD001
60.3 3.001 1.502 CT 1.620 1.02 32.18 1976 60.3 1.996 1.001 CT 1.079 0.46 23.90 1976 60.3 1.997 0.999 CT 1.080 0.46 21.46 1976 60.3 1.998 1.000 CT 1.046 0.46 21.62 1976 60.3 2.999 1.497 CT 1.564 1.04 32.52 1976 60.4 3.000 1.501 CT 1.566 0.88 29.91 1976 60.4 3.000 1.501 CT 1.566 0.88 29.91 1976			ı			50.3	3.000	1.501	CT	1.581	96'0	31.30			1976	MD001
60.3 1,996 1,001 CT 1,079 0,56 23,90 1976 60.3 1,997 0,999 CT 1,046 0,46 21,62 1976 60.3 1,997 CT 1,046 0,46 21,62 1976 60.4 3,000 1,697 CT 1,684 1,04 32,62 1976 60.4 3,000 1,501 CT 1,666 0,88 29,91 1976 60.4 3,000 1,501 CT 1,666 0,98 31,50 1976			i			60.3	3.001	1.502	CI	1.520	1.02	32.18			1976	MD001
E0.3 1.997 0.999 CT 1.080 0.46 21.46 1976 E0.3 1.998 1.000 CT 1.046 0.46 21.62 1976 E0.3 2.999 1.497 CT 1.584 1.04 32.52 1976 E0.4 3.000 1.501 CT 1.566 0.88 29.91 1976 E0.4 3.000 1.501 CT 1.586 0.98 31.60 1976			!			60.3	1.998	1.001	CI	1.079	0.56	23.90			1976	MD001
50.3 1.998 1.000 CT 1.046 0.46 21.62 1976 60.3 2.999 1.497 CT 1.564 1.04 32.52 1976 60.4 3.000 1.501 CT 1.566 0.88 29.91 1976 60.4 3.000 1.501 CT 1.586 0.98 31.60 1976			١			60.3	1.997	0.999	CT	1.080	0.46	21.46	····		1976	MD001
50.3 2.999 1.497 CT 1.584 1.04 32.52 1976 50.4 3.000 1.501 CT 1.566 0.88 29.91 1976 60.4 3.000 1.501 CT 1.586 0.98 31.60 1976			1			60.3	1.998	1.000	CI	1.046	0.46	21.62			1976	MD001
50.4 3.000 1.501 CT 1.566 0.88 29.91 1976 60.4 3.000 1.501 CT 1.586 0.98 31.60 1976			;			60.3	2.999	1.497	CT	1.584	1.04	32.52	-		1976	MD001
50.4 3.000 1.501 CT 1.586 0.98 31.60 1976						50.4	3.000	1.501	cr	1.556	0.88	29.91			1976	MD001
			:			50.4	3.000	1.501	CT	1.586	96.0	31.60			1976	MD001

11 of 20

					ALU	ALUMINUM	I 2219	.9 K _{lo}							
	PRO	PRODUCT				S	SPECIMEN	z	CRACK			K			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YTELD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.5 • (K _w TYS)* (in.)	K. (Keivin.)	K. MBAN	BTAN	DATE	REFER
					5.03	1.997	1.000	cr	1.083	0.81	28.80			1976	MD001
		:			50.5	1.997	1.000	cr	1.037	68'0	30.27			1976	MD001
		ï		Î	50.5	1.997	1.000	CT	1.089	0.52	23.17			1976	MD001
		ı			60.5	1.998	1.000	CT	1.067	0.49	22.48			1976	MD001
		:			50.7	1.995	1.002	CT	1.041	0.55	23.83			1976	MD001
					50.7	1.995	1.002	CT	1.030	99.0	26.20			9261	MD001
		ŀ			8.03	1.997	966.0	CT	1.063	99'0	23.86			1977	MD001
		;			6:09	2.000	1.000	CT	1.066	0.64	25.95			1978	MD001
		:			6.03	1.997	1.001	CT	1.062	0.67	24.44			1976	MD001
		:		Î	6.03	1.998	1.000	CT	1.047	0.51	23.19			1976	MD001
T851 Cont'd	Plate Cont'd	i	R.T. Cont'd	S-L Cont'd	61.1	3.001	1.501	cr	1.591	0.58	24.82	Cont'd	Cont'd	1976	MD001
		i			61.1	3.001	1.502	CT	1.594	0.60	25.17			1976	MD001
		!			61.3	1.997	1.000	CT	1.055	09:0	25.33			1976	MD001
		:			61.3	2.000	1.000	СТ	1.075	0.50	23.06			1976	100CW
					61.3	1.996	1.001	СТ	1.024	0.61	25.54			1976	MD001
		:			61.3	1.997	1.001	CT	1.068	0.55	24.21			1976	MD001
		1		•	61.5	1.995	0.996	CT	1.040	0.54	24.06			1978	MD001
	-	1			61.6	1.997	1.000	CT	1.087	0.58	24.91			1978	MD001
		;			51.5	2.000	0.999	CT	1.045	0.67	26.70			1978	MD001
		'			61.6	1.997	1.005	CT	1.020	0.48	22.76			1978	MD001
		1			62.2	2.001	1.000	СT	1.033	0.54	24.30			1978	100ŒW

															,				_						—
		REFER	MD001	MD001	MD001	AL001	AL/001	AI.001	AL001	1007V	100'IV	100.TA	100/IV	AL/001	100/TV	AL001	AL001	AL001	AL001	AL001	AL001	AI.001	AL001	AL001	AL001
		DATE	1977	1977	1976	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977
		STAN		6.6	}											3.2									
	K _{Io}	K. MEAN		28.3												39.2									
		K. (Keivin.)	26.92	26.22	32.82	34.80	33.00	35.50	38.60	39.00	40.70	38.00	35.10	37.00	36.50	38.90	39.10	42.10	41.30	46.70	41.10	44.70	42.40	38.90	37.00
		2.6 • (KTYS)¹ (in.)	0.89	0.91	1.14	1.72	1.66	1.79	1.96	1.91	2.08	1.81	1.51	1.68	1.63	1.56	1.68	1.83	1.69	2.16	1.67	1.97	1.78	1.49	1.35
	CRACK		1.539	1.507	1.548	2.580	2.550	2.570	2.560	2.520	2.550	2.620	2.550	2.580	2.560	2.610	2.550	2.530	2.600	2.560	2.570	2.650	2.560	2.530	2.450
9 K _{Ie}	z	DESIGN	cT	CT	Ğ	cr	CT	CT	CT	CT	CT	CT	СT	СT	CT	CT	CT	CT	cr	CT	CT	cT	CT	CT	ದ
[2219	SPECIMEN	THICK (in.) B	1.499	1.499	1.502	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.490	2.500
ALUMINUM	σΩ	WIDTH (in.)	2.999	2.999	3.001	6.000	6.000	6.000	6.000	6.000	6.000	5.000	5.000	6.000	6.000	5.000	6.000	5.000	5.000	6.000	5.000	6.000	6.000	6.000	6.000
ALU		YIELD STR (Ket)	43.4	43.4	48.5	41.9	41.9	41.9	43.4	44.6	44.6	44.6	46.2	46.2	46.2	49.2	49.2	49.2	50.2	50.2	50.3	50.3	50.3	50.4	50.4
		SPEC	1	S ₂				1						•	E	3									
		TEST TEMP (°F)		R.T.											E	<u>:</u>								-	
	PRODUCT	THICK (la.)	•	·	i	7.50	7.50	7.50	7.50	6.50	6.50	6.50	4.50	4.50	4.50	6.50	5.50	6.50	4.60	8.E	3.50	3.50	3.50	2.50	2.50
	PRO	FORM		Forging											į.	Forging									
		CONDITION		1862											CHOP	7001									

					ALU	ALUMINUM	[2219	9 K _{Io}							
	PROI	PRODUCT				SZÓ.	SPECIMEN	z	CRACK			Kı			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIRLD STR (Kel)	WIDTH (in.)	THICK (in.) B	DESIGN		2.6 • (K _{t.,} TY8)* (ln.)	K. (Keivin.)	K. MEAN	BTAN DEV	DATE	RKFER
		2.50		!	50.4	6.000	2.490	CT	2.540	1.33	36.80			1977	AL001
		2.00			50.7	3.000	1.500	СT	1.570	1.48	39.00			1977	AL001
T862 Cont'd	Forging Cont'd	3.50	R.T. Cont'd	Cont'd	61.2	2.000	2.500	CT	2.620	1.59	40.80	Cont'd	Cont'd	1977	AL001
		3,50			51.2	5.000	2.500	CT	2.580	1.69	42.10			1977	A1.001
		3.50			51.2	5.000	2.500	СT	2.510	1.66	40.40			1977	AL001
		ı			43.8	3.000	1.502	CT	1.617	1.06	28.53			1976	MD001
		·			45.7	2.998	1.500	CT	1.569	0.81	26.04			1976	MD001
		:			47.1	3.000	1.501	CT	1.566	1.30	34.08			1976	MD001
T862	Forging	ì	R.T.	T.S	47.2	3.000	1.500	CT	1.674	1.12	31.70	29.1	2.9	1976	100QW
		i			47.8	3.000	1.502	CT	1.562	0.77	26.66			1976	100QW
		i			47.9	2.999	1.501	CT	1.578	0.81	27.33			1976	MD001
		ì			48.0	3.000	1.502	CT	1.549	0.91	29.10			1976	MD001
		6.50			43.1	6.000	2.500	CT	2.620	1.07	28.20			1977	AL001
		6.50			43.1	5.000	2.500	cr	2.570	1.10	28.60			1977	AL001
		;			44.0	5.000	1.984	CT	2.502	0.75	24.10			1973	85836
		:			44.0	5.000	1.998	CT	2.271	0.63	22.20			1973	85836
		7.50	1	;	44.2	3.000	1.500	CT	1.540	0.81	25.10			1977	AL001
T862	Forging	7.50	K.T.]	44.2	3.000	1.500	cr	1.530	0.69	23.30	27.1	2.2	1977	AL001
		4.50			45.7	6.000	2.500	CI	2.540	0.96	28.10			1977	AL001
		4.50			45.7	5.000	2.500	CT	2.530	0.97	28.40			1977	AL001
		5.50			46.4	5.000	2.500	cr	2.520	0.74	25.20			1977	AI.001
		3.50			49.8	6.000	2.500	CT	2.560	0.80	28.10			1977	AL001

SPEC YIELD WIDTH THICK OR (Kei) W B
49.8 5.000 2.500 CT
2.000
49.9 5.000 2.500 CT
49.9 5.000 2.490 CT
50.2 5.000 2.500 CT
T-L 50.2 5.000 2.500 CT
Cont'd 50.2 5.000 2.500 CT
50.6 3.000 1.500 CT
50.6 5.000 2.500 CT
50.6 3.000 1.500 CT
50.6 5.000 2.500 CT
50.6 5.000 2.500 CT
50.6 3.000 1.500 CT
43.0 3.000 1.502 CT
44.7 2.999 1,501 CT
S-T 46.2 2.999 1.500 CT
48.8 3.000 1.502 CT
49.1 3.000 1.501 CT
42.6 3.000 1.600 CT
S-L 42.9 1.997 0.999 CT
42.9 1.997 0.999 CT

PORM (in.) (FP) GEAN (FP) (FP) GEAN (GEAN) (TIONIUM TOTAL										
FORM (in.) (vP) OR (in.) (vP) OR (in.) (vP) OR (in.) (vP) OR (in.) (in.) (vP) OR (in.) (in		SP	SPECIMEN		CRACK			K _{Io}			
	SPEC YELD OR (Kei)	WIDTH (in.)	THICK (in.)	DESIGN		2.6 * (K _{t.,} TYS)* (in.)	K. (Kelvin.)	K, MEAN	STAN	DATE	REFER
	43.2	3.001	1.602	CT	1.632	0.92	26.28			1977	MD001
	43.2	3.001	1.601	ţ	1.666	0.77	24.02			1977	MD001
	43.6	1.999	0.999	ď	1.077	0.67	22.73			1976	MD001
R.T. S-L. Cont'd Cont'd	44.0	2.998	1.500	CT	1.596	0.88	26.25			1976	MD001
	44.0	3.001	1.601	cr	1.586	0.65	22.46			1976	MD001
R.T. S-L. Cont'd Cont'd	44.0	3.009	1.500	CT	1.570	0.66	22.66		, <u></u>	1976	MD001
7.50 Porging R.T. S-L Cont'd Cont'd	44.0	2.999	1.500	CT	1.570	0.83	25.39			1976	MD001
7.50 7.50 7.50 Porging R.T. 9-L. Cont'd	44.0	3.009	1.502	cr	1.586	0.68	22.96			1976	MD001
7.50 Forging R.T. S-L. Cont'd Cont'd Cont'd	44.1	4.000	2.000	CT	2.050	0.88	26.10			1977	AL/001
Forging R.T. S.L. Cont'd Cont'd	44.1	4.000	2.000	cr	2.020	0.87	26.00			1977	AL001
Contd Contd	8.L 44.2	2.999	1.500	CT	1.614	0.88	26.37			1976	MD001
	Cont'd 44.2	3.000	1.499	្ន	1.594	1.36	32.71	Cont'd	Cont'd	1976	MD001
	44.2	2.999	1.500	CT	1,598	0.81	25.17			1976	MD001
	44.2	3.000	1.500	ಕ	1.590	1.20	30.73			1976	MD001
	44.2	3.000	1.500	ដ	1.603	1.41	33.20			1976	MD001
	44.2	3.000	1.502	5	1.566	0.90	26.65			1976	MD001
44.2	44.2	3.000	1.500	ភ	1.572	1.19	30.55			1976	MD001
44.2	44.2	3.000	1.502	ฮ์	1.568	0.91	26.71			1976	MD001
44.5	44.6	3.001	1.499	ಕ	1.697	0.54	20.84			1976	MD001
	44.5	3.007	1.501	ธ	1.607	09:0	21.91			1976	MD001
44.5	44.5	3.001	1.602	Ę,	1.468	1.07	29.23			1976	MD001
44.5	44.6	3.005	1.501	Į.	1.586	0.62	22.32			1976	MD001

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TABLE 7.11.2.1 (CONTINUED)	
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		REFER	MD001	AL001	AL001	AI.001	MD001	AL001	AL001	MD001	MD001	MD001	MD001	AL001	AL001	AL001	AI.001							
		DATE	1976	1976	1976	1976	1976	1976	1977	1976	1977	1977	1977	1976	1977	1977	1976	1977	1976	1977	1977	1977	1977	1977
		STAN DEV												Cont'd										
	K _I	K. MEAN												Cont'd										
		K. (Keivin.)	22.23	22.75	23.66	28.07	28.90	28.99	35.32	23.61	22.20	24.30	24.40	28.45	23.60	23.40	23.67	25.44	28.09	23.07	25.10	25.30	25.80	26.60
		2.6 • (K _{to} TYS)* (in.)	0.62	0.64	99.0	0.96	1.01	1.01	1.43	0.63	0.56	0.67	0.67	0.90	0.63	0.61	0.58	0.67	0.81	0.54	0.64	0.65	0.67	0.69
	CRACK		1.591	1.079	1.097	1.582	1.671	1.478	1.486	1.063	1.510	1.530	1.550	1.514	1.030	1.030	1.051	1.616	1.586	1.628	1.040	1.030	1.020	2.060
9 K _{Ie}	z	DEBIGN	CT	CT	CT	CT	CI	CT	Į.	CT	CT	CT	CT	CT	CT	CT	CT	cr	C.T.	ÇĪ	CŢ	СŢ	CT	СŢ
2219	SPECIMEN	THICK (In.) B	1.500	0.999	0.998	1.501	1.601	1.501	1.602	1.000	1.500	1.500	1.500	1.602	1.000	1.000	0.999	1.501	1.501	1.602	1.000	1.000	1,000	2.000
ALUMINUM	80	WIDTH (fn.) W	3.000	1.998	1.997	3.001	3.000	3.001	2.996	1.995	3.000	3.000	3.000	3.001	2.000	2.000	1.997	3.000	3.003	3.003	2.000	2.000	2.000	4.000
ALUI		YIELD STR (Kel)	44.5	44.7	46.3	46.4	45.4	45.6	46.7	46.8	47.0	47.0	47.0	47.2	47.2	47.2	48.9	49.1	49.3	49.6	49.7	49.7	49.7	60.8
		SPEC											3.6	Cont'd										
		TEST TEMP (°F)											R.T.	Cont'd										
	UCT	THICK (in.)	4.50												6.50									
	PRODUCT	FORM											Forging	Cont'd										
		CONDITION											T862	Cont'd										

					ALU	ALUMINUM	[2219	9 K _I							
	PRO	PRODUCT				8	SPECIMEN	z	CRACK			K _{Ie}			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIRLD STR (Kei)	WIDTH (in.)	THICK (in.) B	DEBIGN	LENGTH (in.) A	2.6 * (K _{L,} /TYB)* (in.)	K. (Keivin.)	K. MBAN	STAN DEV	DATE	REFER
		6.50		,	60.8	4.000	2.000	Ç	2.040	0.60	24.90			1977	AL/003
		6.50			50.8	4.000	2.000	CT	2.040	0.69	24.70			1977	100/IV
		3.50			51.1	2.000	1.000	ÇŢ	1.020	0.61	25.20			1977	100/IV
		3.50		·	61.1	2.000	1.000	CT	1.040	0.62	25.50			1977	100/IV
		2.50			51.1	2.000	1.000	CT	1.010	0.43	21.20			1977	AL/001
		2.50			51.1	2.000	1.000	CT	1.010	0.44	21.40			1977	100/IA
T862 Cont'd	Forging Cont'd	3.50	R.T. Cont'd	S-L Cont'd	51.1	2.000	1.000	CT	1.010	0.54	23.80	Cont'd	Cont'd	1977	AL001
		2.50			61.1	2.000	1.000	CT	1.010	0.49	22.60			1977	AL001
		4.60			61.2	3.000	1.500	ст	1.570	0.63	25.70			1977	AI.001
		4.60	•		51.2	3.000	1.500	ст	1.570	0.52	23.40			1977	AI.001
		4.50			51.2	3.000	1.500	cr	1.530	0.68	26.70			1977	AL001
		2.00			61.6	1.500	0.750	CT	0.800	0.62	25.60			1977	AI.001
		:			62.3	1.997	1.001	СТ	1.044	09:0	25.63			1976	MD001
1852	Forging	3.00	82	ŗ	63.0	4.000	1.502	СŢ	2.055	0.99	33.30	ı	ì	1973	86213
T852	Forging	3.00	82	T-L	53.3	4.000	1.501	CT	2.037	0.43	22.00	!		1973	86213
T852	Forging	3.00	82	S.T.	62.7	2.500	0.748	cr	1.244	0.46	22.60	ı	i	1973	86213
T852	Forging	3.50	84	T-I	48.0	3.990	1.686	CT	2.077	0.87	28.30	1	ı	1973	86213
T852	Forging	3.50	84	S-T	60.0	2.500	1.000	CT	1.231	0.73	27.10	ı	i	1973	86213
		6.75			46.0	3.990	1.998	CT	1.985	1.41	34.60			1973	86213
T852	Forging	6.75	98	7	49.4	4.000	1.996	CT	1.970	1.27	35.20	36.1	0.6	1973	86213
		6.75			51.2	4.000	1.997	CT	1.978	1.20	35.50			1973	86213

19 of 20

					ALU	ALUMINUM	[2219	.9 K _{Io}							
	PRO	PRODUCT				oz.	SPECIMEN	N	CRACK	·		¥,			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kal)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 * (K _{he} /IYB)* (in.)	K. (Kelvin.)	K. MBAN	STAN	DATE	REFER
		6.75			46.2	3.990	1.997	CT	2.067	0.89	27.50			1973	86213
		6.75			46.5	3.990	1.997	CT	2.127	0.96	28.70			1973	86213
T852	Forging	6.76	25	T.L	49.2	4.000	1.997	CT	2.080	0.56	23.30	25.3	2.7	1973	86213
		6.75			49.7	4.000	1.997	СT	2.019	0.51	22.50			1973	86213
		6.75			49.7	3.990	1.997	CT	1.987	0.62	24.70			1973	86213
		6.75			44.9	2.500	1.249	CT	1.233	0.67	23.30			1973	86213
		6.75			46.7	2.500	1.249	CT	1.234	0.62	23.30			1973	86213
T862	Forging	6.75	28	r.s	46.7	2.500	1.249	CT	1.243	69'0	24.60	23.5	8	1973	86213
		6.75			48.7	2.500	0.998	CŢ	1.267	0.60	23.80		}	1973	86213
		6.76			49.7	2.500	0.998	CŢ	1.185	0.51	22.50			1973	86213
		2.50			:	2.000	1.252	СŢ	1.100	0.58	35.00			1972	84319
787	E e	2.50	867	o E	:	2.500	1.256	NB	1.220	1.00	47.20			1972	84319
		2.50	3	?	73.0	2.500	1.253	MB	1.240	1.10	48.80	41.0	8.2	1972	84319
		2.50			73.0	2.000	1.251	ÇĪ	1.110	0.51	33.00			1972	84319
		2.50			:	2.000	1.249	CT	1.120	0.55	31.30			1972	84319
787	P. Sp.	2.50	930	ē		2.500	1.249	NB	1.220	1.00	43.30			1972	84319
•		2.50	3	?	67.0	2.000	1.251	CT	1.140	0.55	31.40	36.9	6.4	1972	84319
		2.50			67.0	2.500	1.254	NB NB	1.230	1.00	41.60			1972	84319
E COL	2	1.50	Ş	E	67.0	6.000	1.468	ţ,	2.528	0.95	41.30			1972	85631
		1.50	3	3	67.0	6.000	1.470	СŢ	2.593	0.92	40.50	40.9	9.0	1972	85631
T87	Plate	1.50	-300	T.L	67.0	6.000	1.466	CT	2.671		92.50	ï	i	1972	86631

TABLE 7.11.2.1 (CONCLUDED)

					ALU	ALUMINUM	1 2219	9 K _I							
	PRO	PRODUCT				e a	SPECIMEN	Z	CRACK			K _I			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YTELD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (in.) A	2.6 * (K _L /TYS)* (in.)	K. (Kalvin.)	K, MEAN	STAN	DATE	REFER
		2.00			56.7	2.000	1.000	CT	1.003	0.54	26.30			1973	86213
		2.00		I	56.7	4.000	2.000	CT	1.998	0.58	27.40			1973	86688
E E		2.00	Ę		56.7	4.000	2.000	CT	2.039	0.59	27.50			1973	86688
187	Plate	2.00	ж ::	<u> </u>	56.7	2.000	0.999	CT	1.012	0.50	25.40	28.0	3.0	1973	86213
		2.00		1	56.7	4.000	2.000	CT	2.044	09:0	27.70			1973	86688
		1.60			69.4	6.000	1.467	CT	2.570	0.82	33.90			1972	85631
		2.50		'	1	2.000	1.252	CT	1.110	0.67	26.10			1972	84319
L GE	8	2.50	E		i	2.500	1.253	NB	1.240	1.10	36.40			1972	84319
10/	Flate	2.50		<u>,</u>	65.0	2.000	1.252	СŢ	1.140	99'0	26.40	31.3	5.8	1972	84319
		2.50			65.0	2.500	1.250	NB	1.270	1.10	36.20			1972	84319
z GE		1.00	E	,	67.1	2.000	0.970	CT	1.060	96.0	21.70			1973	86213
187	Flate	1.00	R.T.	7.	67.1	2.000	0.970	CT	1.069	86:0	22.20	22.0	4.0	1973	86213
T87	Plate	1.00	82	T·L	67.1	2.000	0.971	CT	1.034	0.40	22.70	1	:	1973	86213
		1.00		k	67.1	2.000	0.970	Ç	1.072	0.36	21.70			1973	86213
187	Plate	1.00	84	1.1	57.1	2.000	0.970	CT	1.062	0.36	21.80	21.8	0.1	1973	86213
		1.00			67.1	2.000	0.971	CT	1.061	0.37	21.90			1973	86213
e g	Ē	1.50		E	i	6.000	1.466	CT	2.573	:	34.40			1972	16928
10/	FIBITE	1.50	B	1.5	i	6.000	1.466	CT	2.581	Ī	25.40	29.9	6.4	1972	85631
2011/01 4005 1941	5	1.50	Ē	E	!	6.000	1.467	CT	2.560	i	34.50			1972	85631
CMINOT JONE-101	Liate	1.50	 -	3	ı	5.000	1.467	CT	2.672	į	35.10	34.8	0.4	1972	85631

TABLE 7.11.2.2

		REFER		86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213
		DATE		1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973
		STAN DEV			! :		:		l	<u> </u>	l	<u>. </u>	L :	<u> </u>	l		L				0.6	I
	Кc	K _c			i		:				•						•				84.7	
		K _o (Kaivin)		56.24*	48.36*	47.19*	48.32*	67.98*	76.19*	66.52*	71.31•	66.95*	74.10*	67.57*	64.11*	67.79*	1	78.71•	90.21	95.32*	89.12	94.05
				20		*	 	9	1	9	7	9	<u>,</u>		9	9		7		6	5.3	
		STAN N DEV					· 															
	Керр	K. MEAN			i		!						!			T				I	64.2	
		K (Kelvin)	INED	38.65*	38.34	37.81	37.57*	47.07*	45.79*	44.65*	45.79*	45.79*	45.78*	45.64*	45.50*	45.50*	45.33*	45.07	65.72	70.39	69.31	70.39
Kc	SS	MAX (Kei)	RESTRAI	36.60	36.30	35.80	35.50	33.00	31.90	31.50	32.10	32.10	32.50	31.60	31.70	32.10	31.00	31.40	18.30	19.60	19.30	19.60
2219	GROSS	ONSET (Kai)	BUCKLING OF CRACK EDGES NOT RESTRAINED	34.70	34.60	34.50	34.20	ı	:	,	;	:	ŀ	:	ı	1	!	1	:	ı	1	-
NOM	CK GTH	FINAL (in.) 2a,	RACK ED	1.034	0.875	0.863	0.899	1.700	1.930	1.740	1.820	1.720	1.860	1.760	1.670	1.740	i	2.000	10.500	10.350	9.770	10.200
ALUMINUM	CRACK	(ln.) 2a,	NG OF	0.627	0.627	0.626	0.628	1.090	1.100	1.080	1.090	1.090	1.070	1.110	1.100	1.080	1.130	1.100	7.000	7.000	7.000	7.000
A	MEN	THICK (in.) B	BUCKLI	0.062	0.062	0.062	0.062	0.123	0.126	0.126	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	1.000	1.000	1.000	1.000
	SPECIMEN	WIDTH (In.) W		2.000	2.000	2.000	2.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	20.000	20.000	20.000	20.000
	4 181	STR (Kel)		53.0	53.0	53.0	63.0	50.6	51.1	52.0	50.6	50.6	50.6	51.1	51.1	62.0	52.0	62.0	9.09	9.09	9.09	9:09
		SPEC		E -	-	Ē	1						7.7							£	<u> </u>	
	5	TEMP (°F)		E	ij	E	Tr. I.						R.T.							£	.	
	UCT	THICK (In.)		90:0	90.0	90:0	90.0	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	1.00	1.00	1.00	1.00
	PRODUCT	FORM			age lie		a de la companya de l	!		1	1	1	Sheet	1	1	1	1.		1	i i		
		CONDITION HEAT TREAT		181	101	- E							1851							17851		

* NOTE: NET SECTION STRESS EXCREDS 80% OF YIBLD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

		REFER		86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213	86213
		DATE		1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973
		STAN			<u> </u>			Cont'd						!			· .	1	 			<u> </u>	•
	Kc	K _o MEAN				·		Cont'd					******			•		i					-
		K _o (Kel√in)		75.75	77.51	71.81	72.83	98.06	92.67	91.75	103.63*	6124*	62.93*	65.25*	55.81*	55.82*	58.85*	54.52*	57.52*	58.02*	58.37*	52.67*	56.59*
		STAN DEV						Cont'd										ŀ					
	Kapp	K,						Cont'd										ı					
		K (Kei√in)	INED	57.46	58.53	57.46	56.74	66.79	67.51	64.64	65.72	43.20	42.77*	41.65*	42.34	40.82*	43.06*	40.37*	43.09*	43.49*	42.95	41.91*	42.44*
K	SS	MAX (Kel)	RESTRA	16.00	16.30	16.00	15.80	18.60	18.80	18.00	18.30	30.10	29.80	29.20	29.50	28.80	30.00	28.30	30.40	30.30	30.30	29.20	29.20
2219	GROSS STRESS	ONSET (Kei) G.	BUCKLING OF CRACK EDGES NOT RESTRAINED	:	-	:		:	i	;	:	1	:	;	:	:		:	:		!	ı	1
INCM	CRACK LENGTH	FINAL (in.) 2a,	RACK EL	10.050	10.100	9.450	9.750	10.400	10.500	10.870	12.000	1.680	1.740	1.560	1.560	1.600	1.620	1.590	1.560	1.580	1.590	1.480	1.600
ALUMINUM	CR	INTT (in.)	INGOF	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000	1.100	1.100	1.090	1.100	1.080	1.100	1.090	1.080	1.100	1.080	1.100	1.120
,	SPECIMEN	THICK (in.) B	BUCKL	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.126	0.126	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
	SPEC	WIDTH (ln.) W		20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
	uzia	STR (Kei)		51.1	51.1	51.1	51.1	62.0	52.0	62.0	52.0	49.3	49.3	49.3	49.3	50.8	50.8	60.8	60.8	61.2	51.2	51.2	61.2
		SPEC					LT	Cont'd									į	3	•				
	Logic	TEMP (°F)					R.T.	Cont'd									E	H.T.					
	ucr	THICK (ln.)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
	PRODUCT	FORM			1		Plate	Cont'd		.		1	1	1		-1	5	Shoet	1	1	1		
		CONDITION HEAT TREAT					T851	Cont'd					**********				100	Igor					

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

TABLE 7.11.2.2 (CONTINUED)

							Y	ALUMINUM	NOM	2219	K _C								
	PROI	PRODUCT	É		4	SPECIMEN	MEN	CRACK	CK #TH	GROSS	SS		Kapp			Kc			
CONDITION HEAT TREAT	FORM	THICK (ln.)	TEMP (°F)	SPEC		WIDTH 1 W	THICK (in.)	INIT (in.) 2a.	FINAL (in.) 2a,	ONSET (Kei) G	MAX (Ket)	K. (Keivin)	K	STAN	K _e (Kel√in)	K _o MEAN	STAN	DATE	REFER
							BUCKLIP	VG OF C	BUCKLING OF CRACK EDGES NOT RESTRAINED	GES NOT	RESTRAI	NED							
		1.00			49.3	20.000	1.000	7.000	9.500	ı	14.90	53.51			67.17			1973	86213
		1.00		I	49.3	20.000	1.000	7.000	10.100	-	15.10	54.23			71.81			1973	86213
		1.00			49.3	20.000	1.000	7.000	10.000	1	14.70	62.79			69.28			1973	86213
		1.00		1	49.3	20.000	1.000	7.000	9.300		14.80	53.15			65.54			1973	86213
		1.00		!	50.2	20.000	1.000	7.000	10.050	:	13.00	46.68			61.55			1973	86213
į	Ē	1.00	É		50.2	20.000	1.000	7.000	9.200	ı	13.50	48.48			59.25			1973	86213
1691	rlate	1.00		 :	50.2	20.000	1.000	7.000	9.990	·	13.40	48.12	51.4	2.8	63.10	66.3	4.2	1973	86213
		1.00		L	50.2	20.000	1.000	7.000	9.850	ı	13.40	48.12			62.32			1973	86213
		1.00		1	51.2	20.000	1.000	7.000	9.650	:	14.10	50.63			64.42			1973	86213
		1.00			51.2	20.000	1.000	7.000	10.000	:	14.80	53.15			69.76			1973	86213
		1.00			51.2	20.000	1.000	7.000	10.000	ı	15.00	53.87			70.70			1973	86213
		1.00			51.2	20.000	1.000	7.000	10.000	:	15.10	54.23			71.17			1973	86213
							BUCK	LING O	BUCKLING OF CRACK EDGES RESTRAINED	EDGES RE	STRAIN	£D							
		90.0			7.07	9.500	0.067	0.610	:	;	61.50	60.66*			;			1971	80104
732	db db	90'0	Ş	Ę.	7.07	9.500	0.067	0.490	:		62.60	55.19*			:			1971	80104
	180	90'0	3	<u> </u>	7.07	6.500	0.068	0.300	;	;	66.70	45.87*	;	!	1	!	i	1971	80104
		90:0			7.07	6.500	0.068	0.400	ı	ı	64.60	51.37*			1			1971	80104
787	40040	90.0	793	F	7.07	6.700	990.0	0.820	1	1	68.20	66.67*						1971	80104
6	130110	0.06	67.	<u> </u>	70.7	6.700	0.068	0.890	i	ŀ	57.50	68.74*	ı	i		1	ı	1971	80104

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

							AI	ALUMINUM	NUM	2219	Kc								
	PRO	PRODUCT			5	SPECIMEN	MEN	CRACK	Ж	GROSS	SS		Kapp			Kc			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Kel)	WIDTH 7	THICK 1 (in.)	INIT F	FINAL (in.)	ONSET (Kei)	MAX (Ket)	K (Keivin)	K	STAN DEV	K _e (Kal√in)	K, MEAN	STAN	DATE	REFER
							BUCKL	ING OF	BUCKLING OF CRACK EDGES RESTRAINED	DGES RE	STRAIN	α							
T87	Sheet	90:00	-423	5	7.07	6.700	0.068	1.180		;	53.60	74.40*			ŀ			1971	80104
Cont'd	Cont'd	90:0	Cont'd	Cont'd	7:07	6.700	0.069	1.030	:		55.70	71.90*	Cont'd	Cont'd	:	Cont'd	Cont'd	1971	80104
504	ŧ	90.0	Ş	i	73.8	15.930	0.061	2.060	6.410		26.30	79.13			92.91			1966	69759
187	Sheet	90.0	-423	<u>.</u>	73.8	15.990	0.062	2.000	5.980	:	26.30	78.49	78.8	0.5	88.35	90.6	3.2	1966	69769
		90.0			64.5	9.500	0.068	0.620	:	i	57.10	€6.80						1971	80104
tot	į	90.0	Ę	E	64.5	2.500	0.068	0.330	:	:	63.20	45.60*			:			1971	80104
ò	aneet	90.0	025-	3	64.5	6.500	0.068	0.480	:	:	60.20	52.52*	i	ı		ŀ	:	1971	80104
		90.0			64.5	5.500	0.069	0.420		1	61.50	50.13*			ŀ			1971	80104
		90.0			64.5	6.700	0.067	0.880		:	55.90	66.43*			:			1971	80104
T87	Sheet	90:0	-320	L.T	64.5	6.700	0.068	1.000	1	1	54.60	69.39*	ŀ	ŀ	-	ı	·	1971	80104
		90:0			64.5	6.700	0.069	1.200	1	:	51.10	71.58*			1			1971	80104
T87	Sheet	0.10	R.T.	L.T	58.5	3.500	0.100	0.750	0.980	ı	46.40	51.84	i	i	60.52*	ı	1	1962	62306
		90.0			65.0	9.500	0,067	0.520	ı	:	49.80	45.26*						1971	80104
ğ	100	90.0	Ē	E	55.0	2.500	0.067	0.400	i	1	51.30	40.80*			1			1971	80104
	1800	90.0	:	<u> </u>	65.0	6.500	990.0	0.620	:	:	47.90	47.64*	i	i	1	:	ŧ	1971	80104
		90'0			65.0	2.500	990'0	0.330	i	-	52.50	37.88*			ı			1971	80104
T87	Sheet	0.10	R.T.	LT.	58.5	000.9	0.100	2.000	2.460	:	34.60	65.90	1	i	76.06*	:	1	1962	62306

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

* NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

TABLE 7.11.2.2 (CONTINUED)

							A	ALUMINUM	NUM	2219	Κ								
	PROI	PRODUCT	6		4	SPECIMEN	MEN	CRACK	CK iTH	GROSS	SS SS		Kapp			K c			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC		WIDTH (in.)	THICK (in.)	(in.) 2a,	FINAL (In.)	ONSET (Kai) G	MAX (Ket)	K (Kelvlin)	MEAN	STAN	K _e (Kel√in)	K _e MEAN	STAN	DATE	REFER
							виски	ING OF	BUCKLING OF CRACK EDGES RESTRAINED	DGES RE	STRAINE	e.							
		0.10			58.5	48.000	0.100	41.90	43.180	ļ	4.30	78.34			89.35			1962	62306
187	Sheet	0.10	R.T.		58.5	48.000	0.100	24.00	25.720	:	15.40	112.45			119.93			1962	62306
Cont'd	Contd	0.10	Cont'd	Cont'd	58.5	48.000	0.100	8.000	9.250	:	28.20	101.71	Contd	Cont'd	110.02	Cont'd	Cont'd	1962	62306
		0.10			58.5	48.000	0.100	12.00	14.200	ï	24.50	110.66			122.38			1962	62306
							BUCKLIP	IG OF CI	BUCKLING OF CRACK EDGES NOT RESTRAINED	ES NOT I	RESTRAI	NED							
T87	Sheet	0.03	-423	7.	74.0	12.000	0.032	1.210	2.020	i	48.10	66.73	:		87.21	i	i	1966	66103
T87	Sheet	0.12	-423	LT	74.0	12.000	0.125	1.230	1.940	ì	46.20	64.64			81.97	:		1966	66103
T87	Sheet	0.03	-423	7.	74.0	16.000	0.032	4.240	7.030	1	27.80	75.02	!	ŀ	105.20	:		1966	66103
T87	Sheet	0.12	-423	7.	74.0	16.000	0.125	4.830	6.310	!	26.90	78.55	ı	ı	93.86			1966	66103
		90.0		1	59.2	2.000	0.064	0.625	1.080	ı	37.80	39.84*			60.54*			1973	86213
		90'0			59.2	2.000	0.064	0.622	0.810	:	38.10	40.08			47.92*			1973	86213
T87	Sheet	90.0	R.T.		59.2	2.000	0.064	0.623	0.880	i	37.80	39.76*	ŧ	ŀ	50.63*	ı	i	1973	86213
		90.0			59.2	2.000	0.064	609.0	0.940	-	38.70	40.13*			54.68*			1973	86213
		90.0			59.2	2.000	0.065	0.625	1.110		38.10	40.16*			62.72*			1973	86213
		0.12			58.1	2.990	0.125	0.993	1.250	:	36.40	48.79*			57.31*			1973	86213
, of	9100	0.12	E	Ł	54.7	3.000	0.125	1.090	1.820	1	32.50	46.36*			72.20*			1973	86213
001	199 UC	0.12	ж. Т	1 5	54.7	3.000	0.126	1.080	1.800	ı	32.50	46.07*	ł	i	71.28*	ı	1	1973	86213
		0.12				3.000	0.126	0.992	1.200		36.20	48.50*			55.26			1973	86213

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

TABLE 7.11.2.2 (CONTINUED)

						A	ALUMINUM	NOM	2219	K _c								
%	PRODUCT	600			SPECIMEN	MEN	CRACK	СК этн	GROSS STRESS	SS		Карр			Kc			
FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Kel)	WIDTH '	THICK (in.) B	INIT (in.) 2a,	FINAL (in.) 2a,	ONSET (Kei)	MAX (Kai)	Keivin)	K	STAN	K, (Ketvlin)	K _e MEAN	STAN	DATE	REFER
						BUCKLI	NG OF C	RACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRAI	NED							
Sheet	0.12	R.T.	T-1	58.1	2.990	0.126	0.995	1.300	i	35.90	48.18*			68.25*			1973	86213
Cont'd	0.12	Cont'd	Cont'd	58.1	2.990	0.126	0.992	1.250	:	36.30	48.66*	Cont'd	Contd	67.15*	Cont'd	Cont'd	1973	86213
Sheet	90:0	R.T.	LT	57.7	15.930	0.061	5.000	6.280	;	22.80	68.08			79.36	:	ï	1966	69759
ē	0.06	Ę		57.7	16.290	0.062	6.000	6.360	;	21.50	64.01			75.15			1966	69759
Sheet	0.06	K.T.	-	57.7	16.290	0.062	4.980	5.910	:	23.10	68.60	66.3	3.2	76.70	75.9	1.1	1966	69759
	0.25			57.6	3.000	0.247	1.000	1.680	ŀ	34.30	46.19*			69.79*			1973	86213
575	0.25	E	E	67.6	3.000	0.247	1.160	1.790	1	31.40	46.77*			68.43*			1973	86213
riate	0.25	į	<u> </u>	57.6	3.000	0.247	1.257	2.060	·	29.70	46.89*	I	!	77.72*	ı	1	1973	86213
	0.25			67.6	3.000	0.247	1.130	1.900	:	32.10	46.94*			75.14*		,	1973	86213
	0.25			56.0	4.000	0.244	1.330	2.250	i	32.40	50.30*			76.47*			1973	86213
	0.25			66.0	4.000	0.245	1.430	2.570	i	31.00	€0.50			85.35*			1973	86213
Ē	0.25			66.0	4.000	0.246	1.330	2.260	:	32.20	49.99*			76.35*			1973	86213
riate	0.25		\$	67.6	4.000	0.246	1.330	2.030	ı	34.40	53.41*	:	i	73.49*	ı	:	1973	86213
	0.25			57.6	4.000	0.246	1.330	2.250	:	34.10	52.94			80.49*			1973	86213
	0.25			57.6	4.000	0.247	1.410	2.310	ı	33.20	53.57*			80.58*			1973	86213
	0.25			66.0	4.000	0.255	1.330	2.180	i	32.40	50.30*			74.06*			1973	86213
Plate	0.25	R.T.	LT	56.0	4.000	0.255	1.440	2.470	ï	30.90	50.58	1	ı	80.95◆	i	!	1973	86213
	0.25			66.0	4.000	0.266	1.330	2.160	!	32.10	49.84*			72.71*			1973	86213

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

TABLE 7.11.2.2 (CONTINUED)

ALU	ALU	ALU	ALU	1 = " " "	ALUMINUM	2	Kc								
YIELD	1	ĕ	SPECIMEN		CRACK	GROSS STRESS	SS		Kapp			Кc			
SPEC STR WIDTH OR (Kei) (in.)		Ea.	THICK (la.) B	K (in.)	(in.)	ONSET (Kai) 0.	MAX (Kat)	K (Keivin)	K MEAN	STAN	K _e (Kei√in)	K _c MEAN	STAN DEV	DATE	REFER
			BUC	KLINGO	F CRACK F	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRA	NED							
59.0 2.000		ÓΣ	0 0.064	4 0.623	0.900	i	36.10	37.97*			49.22*			1973	86213
59.0 2.000		ğΙ	0 0.064	4 0.625	0.960	i	36.70	38.68			52.78			1973	86213
59.0 2.000	\dashv	8	0.064	4 0.619	0.880	:	37.40	39.18*	ı	;	€0.09	;	:	1973	86213
59.0 2.000		8	0.064	4 0.622	0.870	ŀ	36.50	38.39			48.45*			1973	86213
69.0 2.000		8	0.064	4 0.625	0.980	-	36.50	38.47*			53.44*			1973	86213
55.9 3.000		8	0.124	1.070	1.760	ı	30.60	43.10*			65.43*			1973	86213
65.9 3.000		8	0.124	1.080	1.690	i	30.50	43.23*			62.44*			1973	86213
58.6 2.990		8	0.126	6 0.991	1.280	i	33.90	45.38*			54.35			1973	86213
58.6 2.990	\dashv	윲	0.126	6 0.992	1.350	i	34.30	45.98*	ı	;	57.34*	ŀ	i	1973	86213
58.6 2.990		ଛ	0.126	0.990	1.300	i	33.90	45.38*			55.00*			1973	86213
58.6 2.990		8	0.126	6 0.994	1.280	ï	34.10	45.77*			54.67			1973	86213
67.2 3.000	ᅱ	8	0.247	7 1.000	1.630		32.00	43.10*			59.47*			1973	86213
57.2 3.000	_	8	0.247	7 1.160	1.740	ŀ	29.20	43.50*	ı	;	61.66	i	i	1973	86213
57.2 3.000	\dashv	8	0.247	7 1.120	1.710	!	30.40	44.18*			63.01			1973	86213
55.9 4.000		8	0.245	5 1.460	2.310	:	26.60	43.95			64.56*			1973	86213
65.9 4.000		8	0.246	6 1.330	2.060	ŀ	28.70	44.56		<u>_</u>	62.14*			1973	86213
65.9 4.000		8	0.246	6 1.330	2.120	ı	28.60	44.40	46.1	1.6	63.62*	i	ì	1973	86213
57.2 4.000		욁	0.246	6 1.330	2.040	I	30.80	47.82*			£6.09*			1973	86213
57.2 4.000		8	0.246	6 1.440	2.170	!	29 00	47.49			*66.99			1973	86213

* NOTE: NRT SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

TABLE 7.11.2.2 (CONCLUDED)

							A	LUMI	NOM	ALUMINUM 2219 K _c	Кc								
	PRODUCT	UCT				SPECIMEN	MEN	CRACK	CK	GROSS	SS		Kapp			Kc			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Kel)	WIDTH (fa.)	(in.) (in.) (in.) (w B 2a.	INIT (in.) 2a,	FINAL (in.) 2a,	ONSET MAX (Kei) (Kei) (G	MAX (Kal)	Keivin)	K, MEAN	STAN	K _e (Kelvin)	K,	STAN	DATE	REFER
							BUCKL	NG OF C	RACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRAI	NED							
		0.25			65.6	4.000	0.255	1.440	2.240	1	27.80	45.50			65.32*			1973	86213
T87	Plate	0.25	R.T.	1:I	55.6	4.000	0.255	1.330	2.060	į	28.90	44.87	45.1	0.3	62.57*	:	ŀ	1973	86213
,		0.25			97.9	4.000	0.256	1.330	2.070	ì	29.00	45.02			63.07*			1973	86213

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

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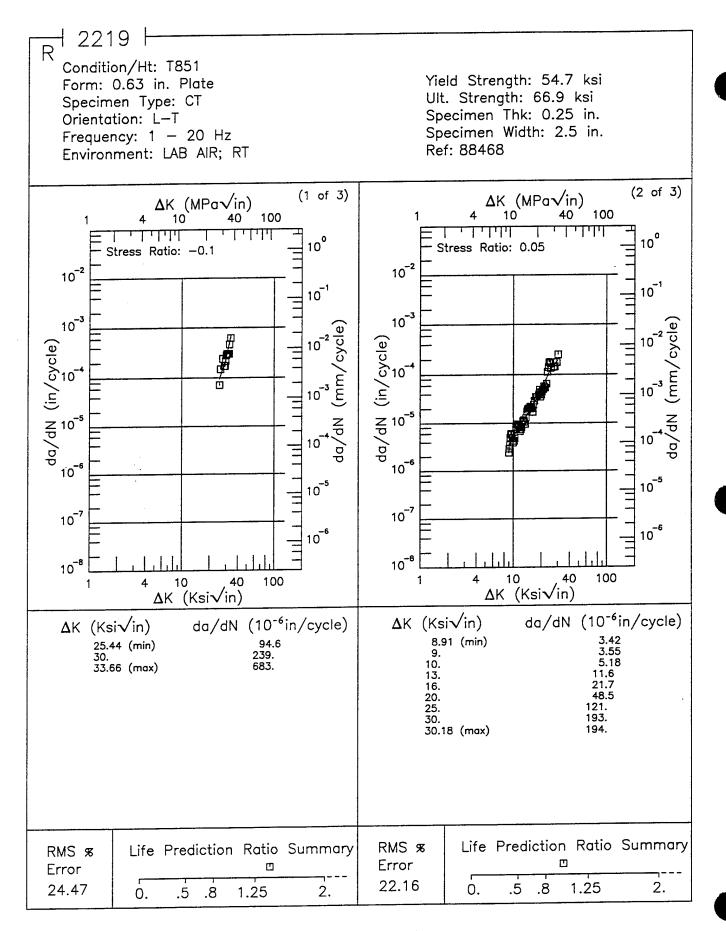


Figure 7.11.3.1.1

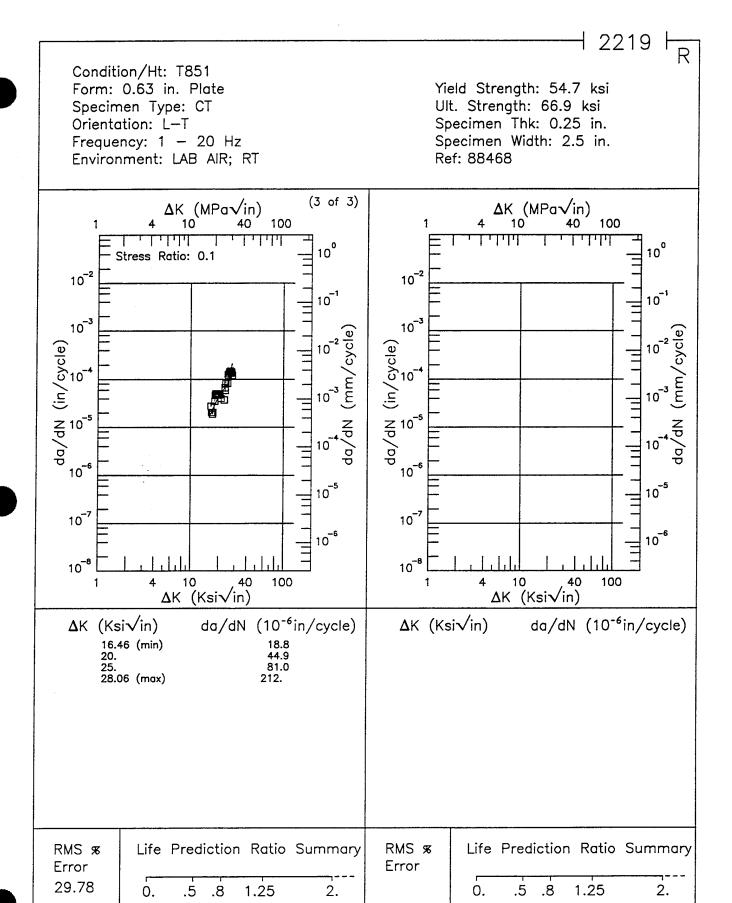


Figure 7.11.3.1.1 (Concluded)

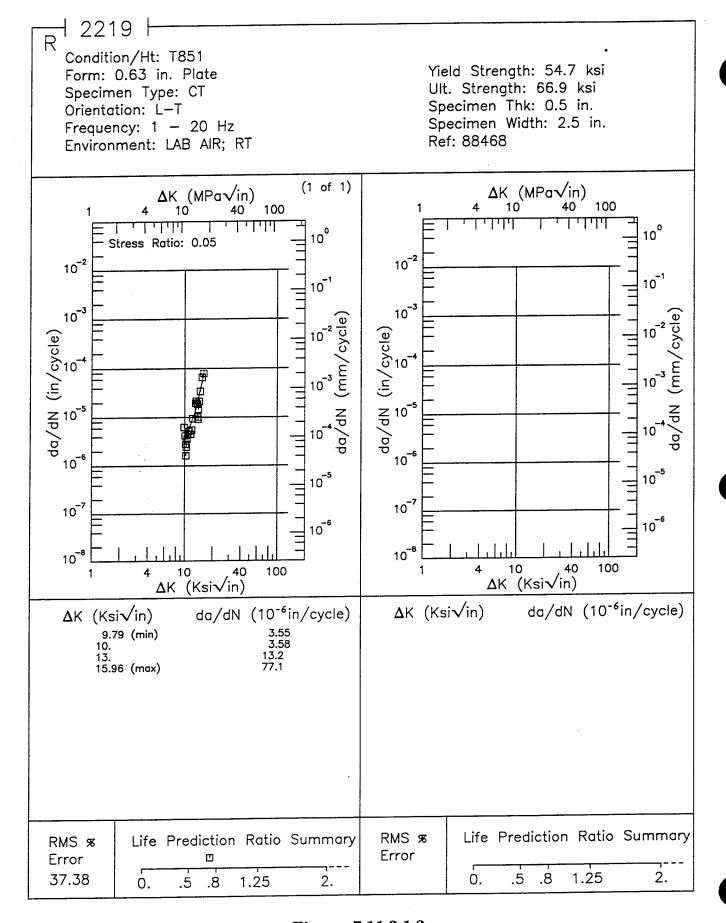


Figure 7.11.3.1.2

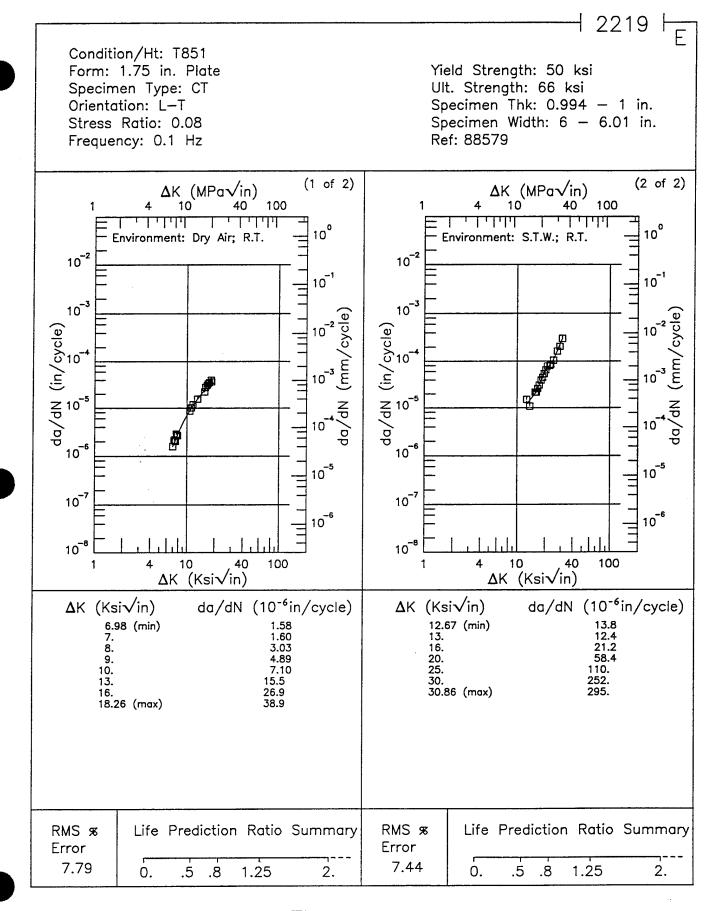


Figure 7.11.3.1.3

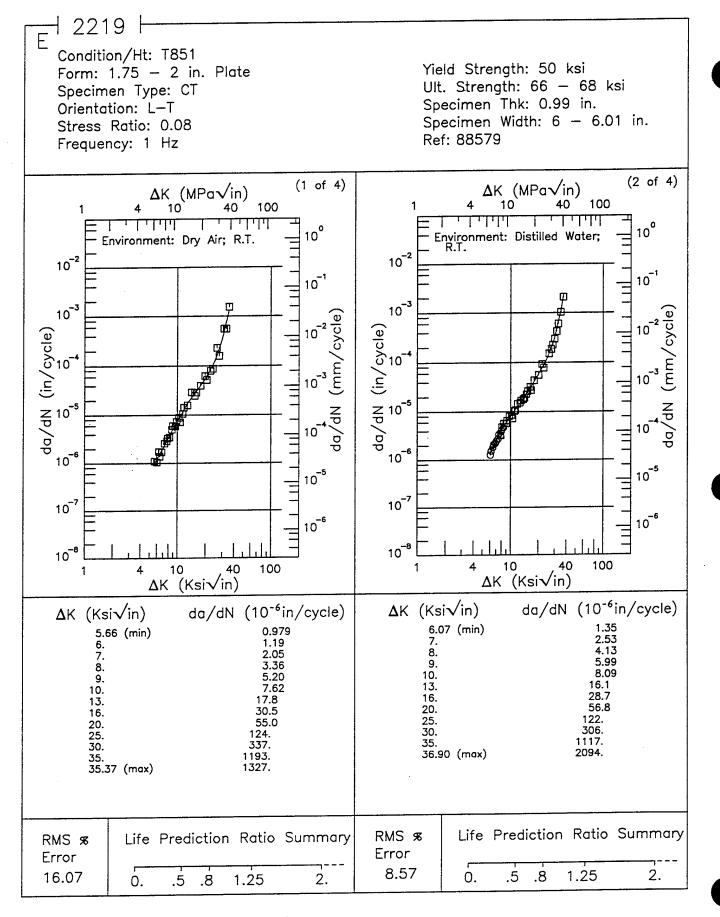


Figure 7.11.3.1.4

d 2219 ⊢E Condition/Ht: T851 Form: 1.75 - 2 in. Plate Yield Strength: 50 ksi Ult. Strength: 66 - 68 ksi Specimen Type: CT Orientation: L-T Specimen Thk: 0.99 in. Specimen Width: 6 - 6.01 in. Stress Ratio: 0.08 Frequency: 1 Hz Ref: 88579 (4 of 4) (3 of 4) $\Delta K (MPa\sqrt{in})$ $\Delta K (MPa\sqrt{in})$ 100 100 10 40 10 40 $\frac{1}{1}$ 11111 , 1, 1,11,1 10° 100 Environment: S.C.S.; R.T. Environment: F.C.S.; R.T. 10-2 10-2 10⁻¹ 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10 5 10⁻⁷ 10-7 10 6 10 -6 10⁻⁸ 10 8 40 100 10 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) ΔK (Ksi√in) 6.13 (min) 7. 8. 6.31 (min) 7. 8. 9. 10. 9. 10. 13. 16. 20. 13. 18.70 (max) 25. 30. 33.42 (max) 394. Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 7.12 2.99 1.25 0. .5 .8 1.25 2. 0. .5 .8 2.

Figure 7.11.3.1.4 (Concluded)

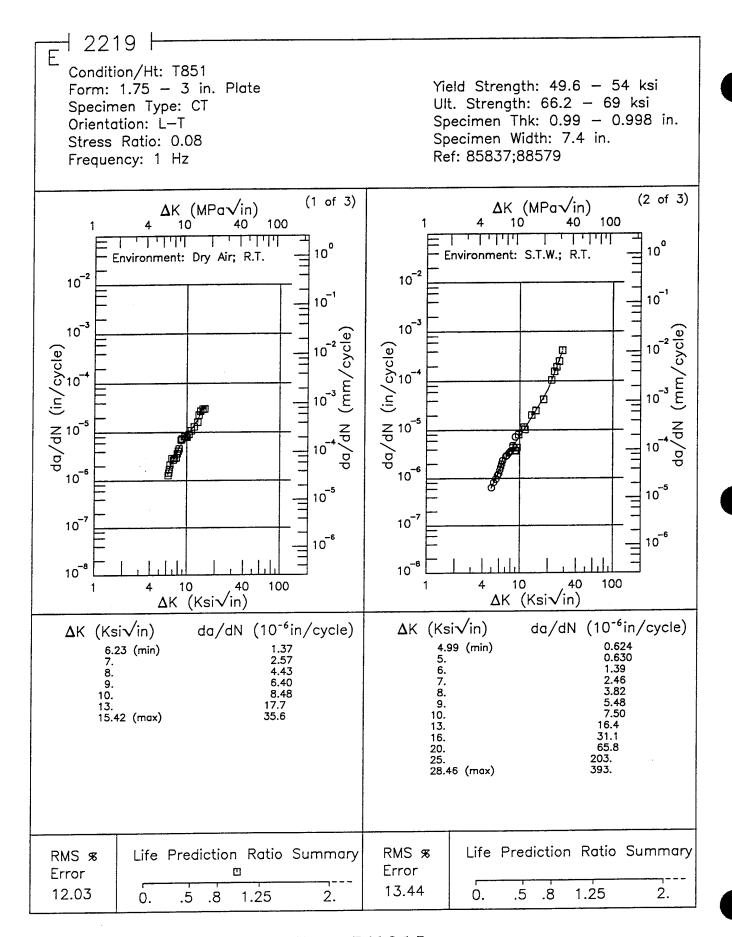


Figure 7.11.3.1.5

Condition/Ht: T851 Form: 1.75 - 3 in. Plate Yield Strength: 49.6 - 54 ksi Specimen Type: CT Ult. Strength: 66.2 - 69 ksi Specimen Thk: 0.99 - 0.998 in. Orientation: L-T Specimen Width: 7.4 in. Stress Ratio: 0.08 Ref: 85837;88579 Frequency: 1 Hz (3 of 3) $\Delta K_{10} (MPa\sqrt{in})$ Δ K (MPa \sqrt{in}) 100 100 1 | 1 | 1 | 1 77777 10⁰ Environment: S.T.W.; 150°F 10-2 10-2 10-1 10 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10-6 10⁻⁵ 10 5 10⁻⁷ 10⁻⁷ 10 6 10⁻⁶ 10⁻⁸ 10 8 100 10 40 100 10 40 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) 6.17 (min) 7. 8. 2.08 4.15 7.26 9. 10. 14.97 (max) Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error 15.45 0. .5 .8 1.25 2. 0. .5 .8 1.25 2.

1 2219

Figure 7.11.3.1.5 (Concluded)

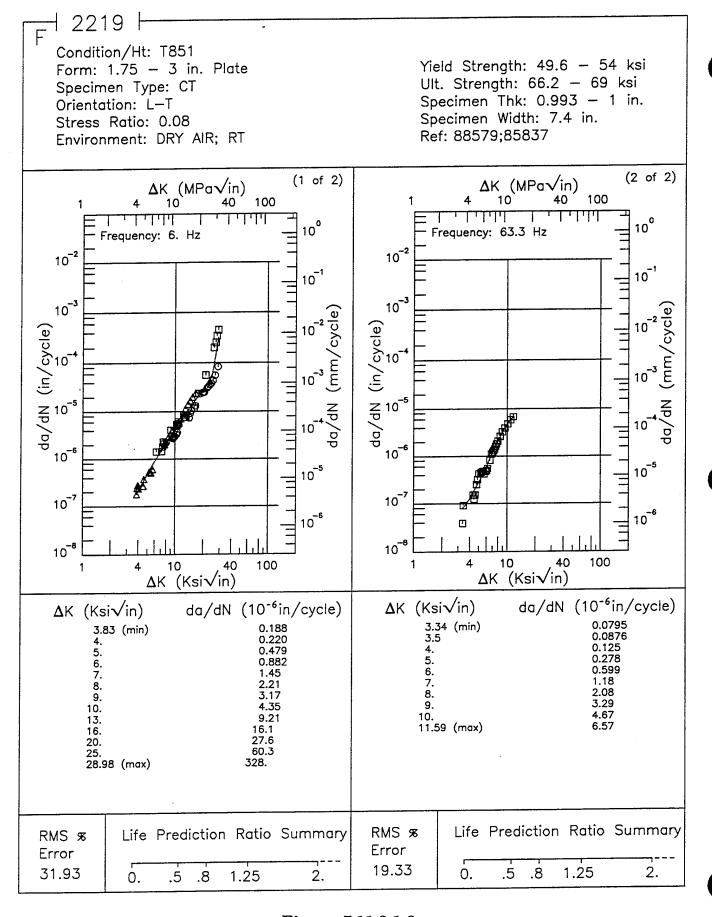


Figure 7.11.3.1.6

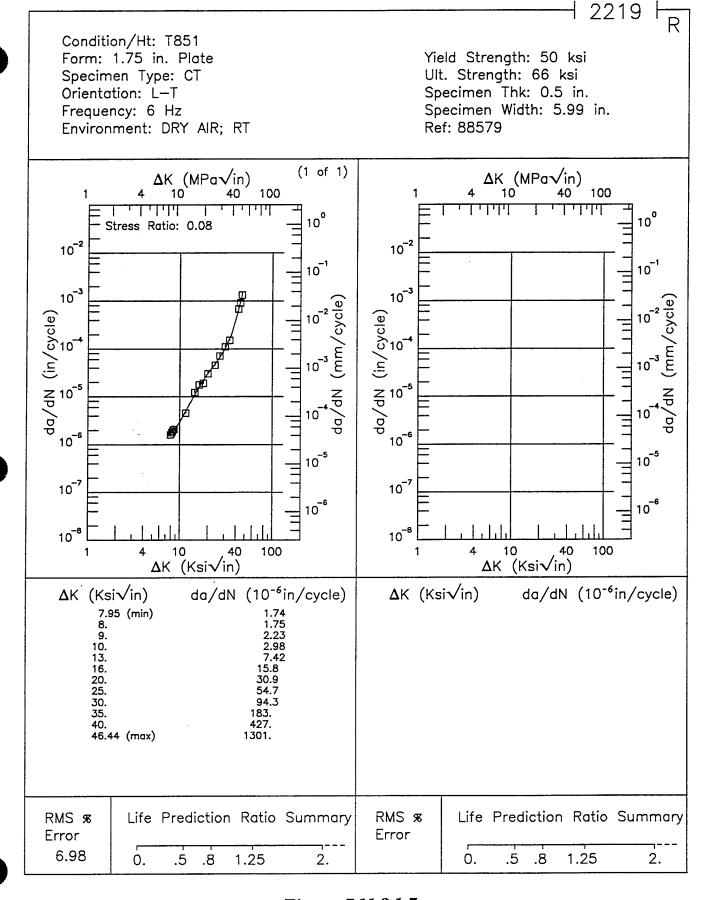


Figure 7.11.3.1.7

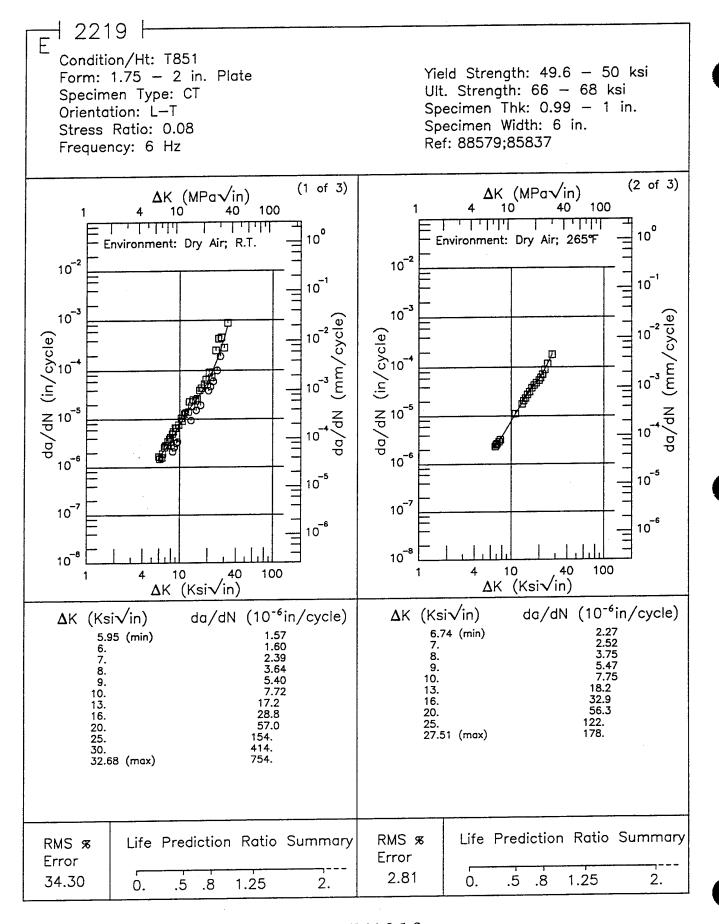


Figure 7.11.3.1.8

Form: 1.75 - 2 in. Plate Yield Strength: 49.6 - 50 ksi Specimen Type: CT Ult. Strength: 66 - 68 ksi Orientation: L-T Specimen Thk: 0.99 - 1 in. Stress Ratio: 0.08 Specimen Width: 6 in. Frequency: 6 Hz Ref: 88579;85837 (3 of 3) Δ K (MPa \sqrt{in}) **Δ**K (MPa√in) 100 10 100 10 77777 1 1 1 1 1 1 1 10° Environment: S.T.W.; R.T. 10-2 10⁻² 10 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10-6 10⁻⁶ 10 5 10⁻⁷ 10⁻⁷ 10 6 10⁻⁶ 10-8 10⁻⁸ 10 40 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) $da/dN (10^{-6}in/cycle)$ 6.48 (min) 7. 8. 9. 10. 13. 16. 20. 25. 27.75 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 3.72 Ò. Ò. 1.25 .5 .8 1.25 .5 .8 2. 2.

Condition/Ht: T851

| 2219 |

Figure 7.11.3.1.8 (Concluded)

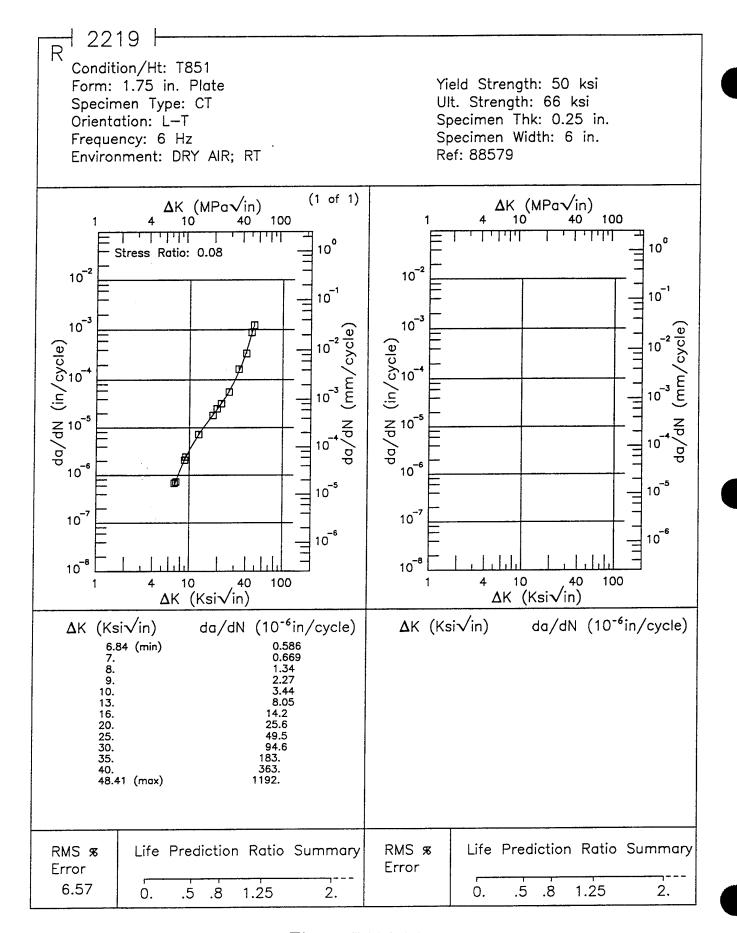


Figure 7.11.3.1.9

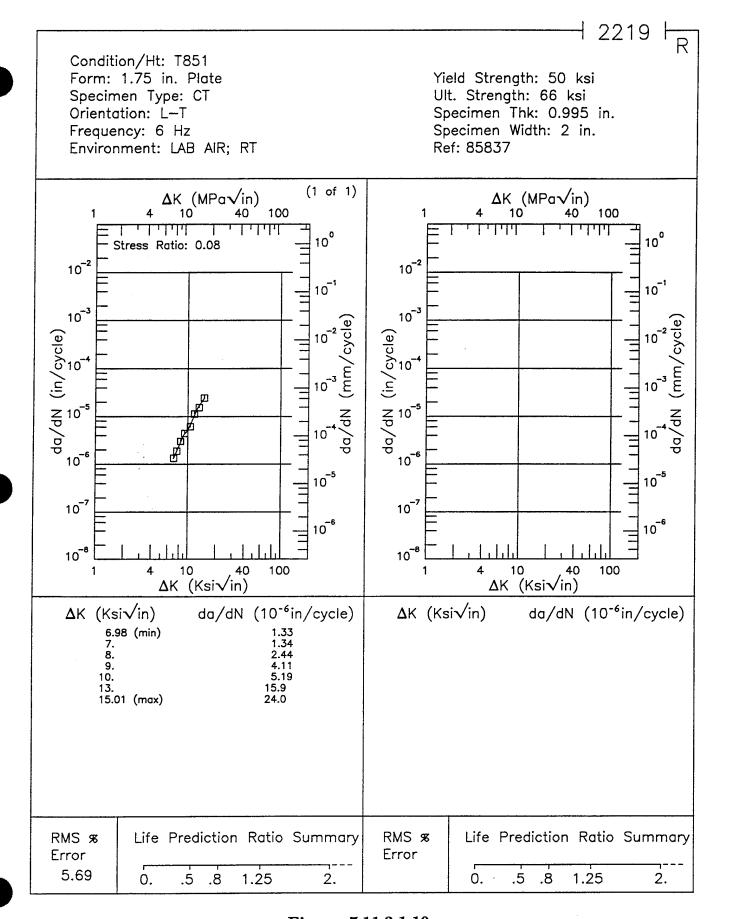


Figure 7.11.3.1.10

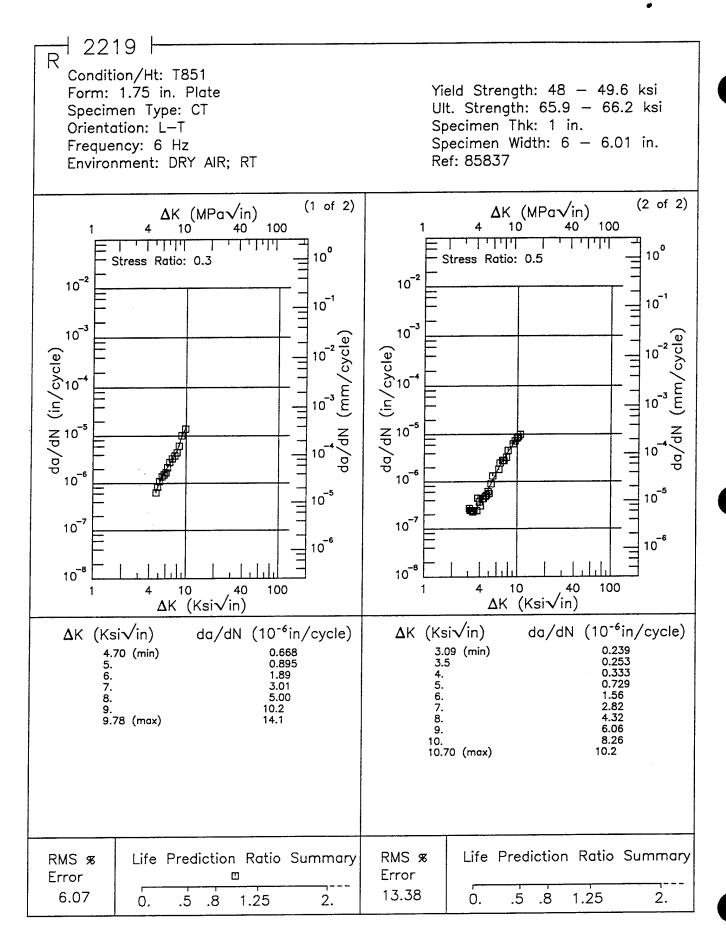


Figure 7.11.3.1.11

┨ 2219 ├

Condition/Ht: T851 Form: 1.75 in. Plate Specimen Type: CT Orientation: L—T

Frequency: 1 Hz

Environment: S.T.W.; RT

Yield Strength: 50 ksi Ult. Strength: 66 ksi

Specimen Thk: 0.99 - 1 in. Specimen Width: 6 - 6.01 in.

Ref: 88579

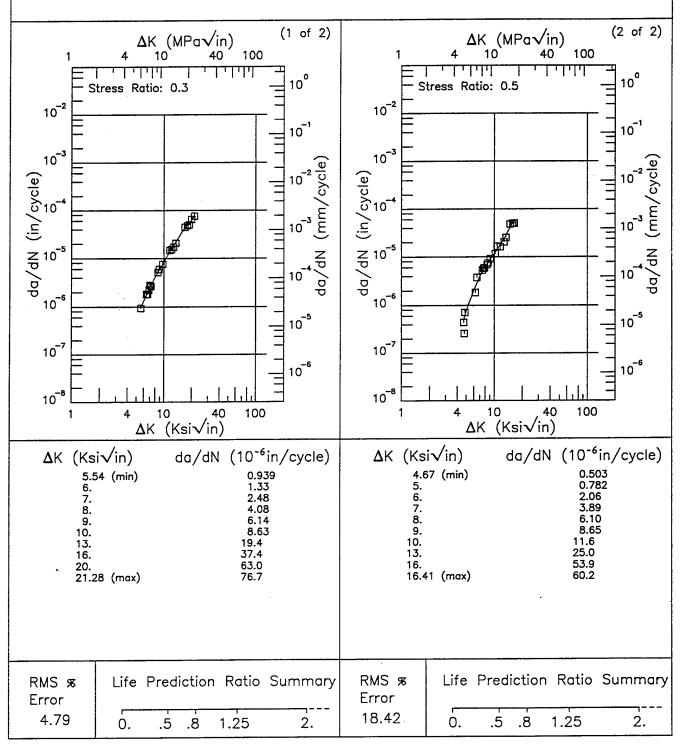


Figure 7.11.3.1.12

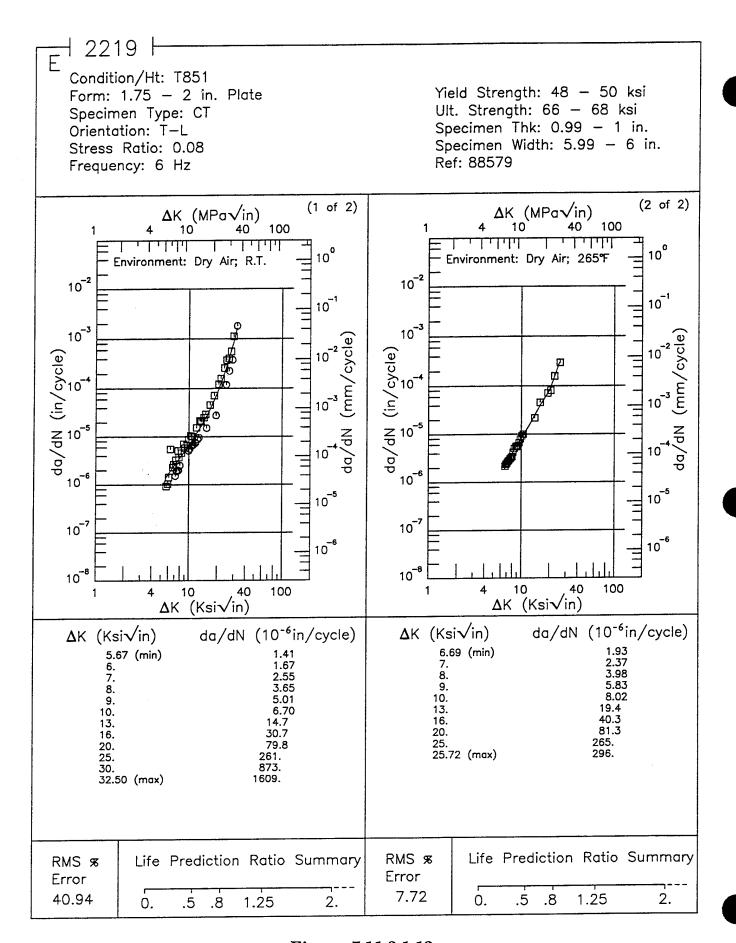


Figure 7.11.3.1.13

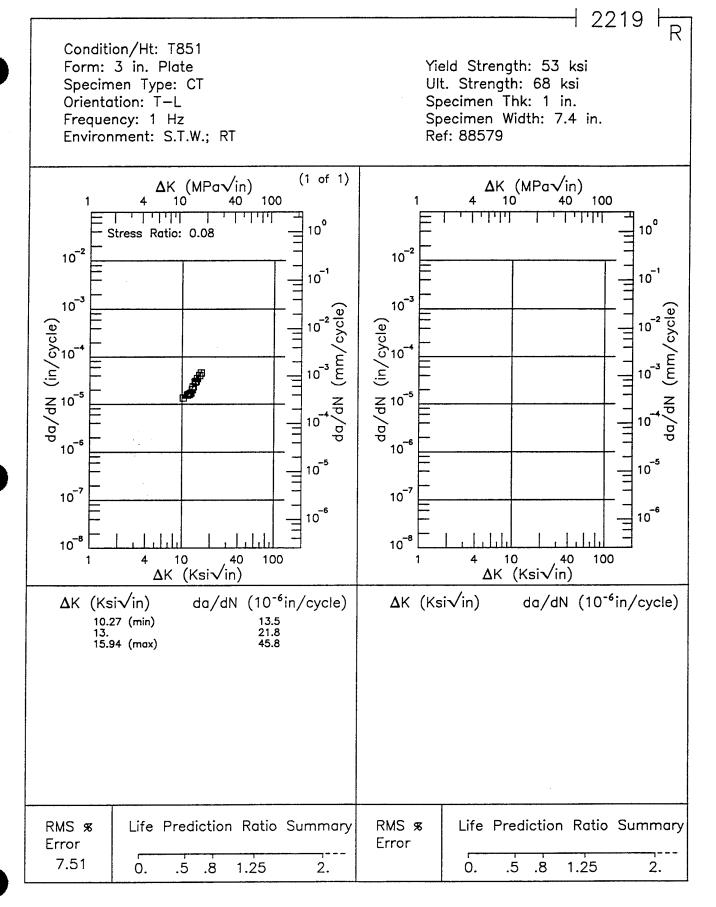


Figure 7.11.3.1.14

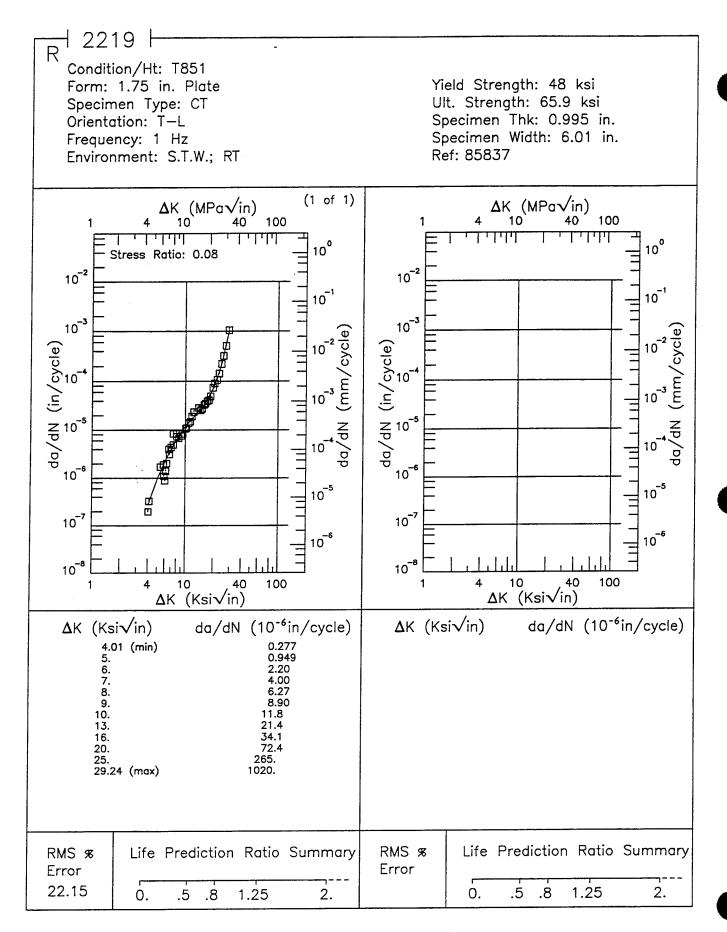


Figure 7.11.3.1.15

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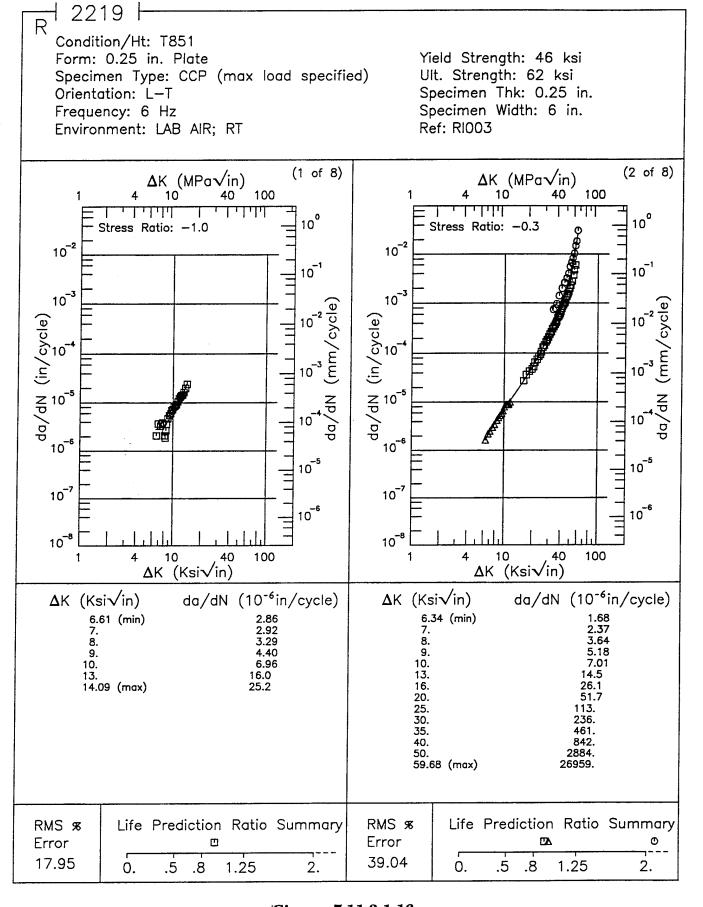


Figure 7.11.3.1.16

2219 H

Condition/Ht: T851 Form: 0.25 in. Plate

Specimen Type: CCP (max load specified)

Orientation: L—T Frequency: 6 Hz

Environment: LAB AIR; RT

Yield Strength: 46 ksi Ult. Strength: 62 ksi Specimen Thk: 0.25 in. Specimen Width: 6 in.

Ref: RI003

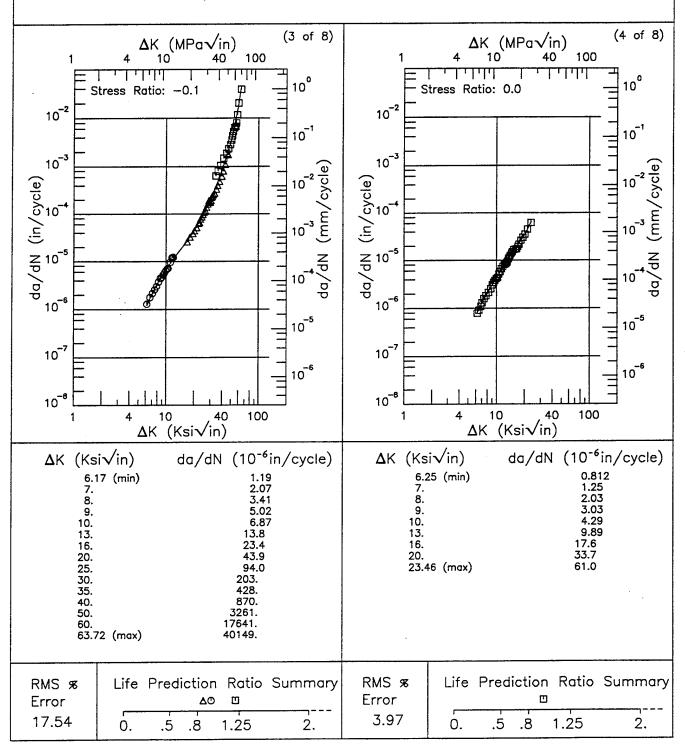


Figure 7.11.3.1.16 (Continued)

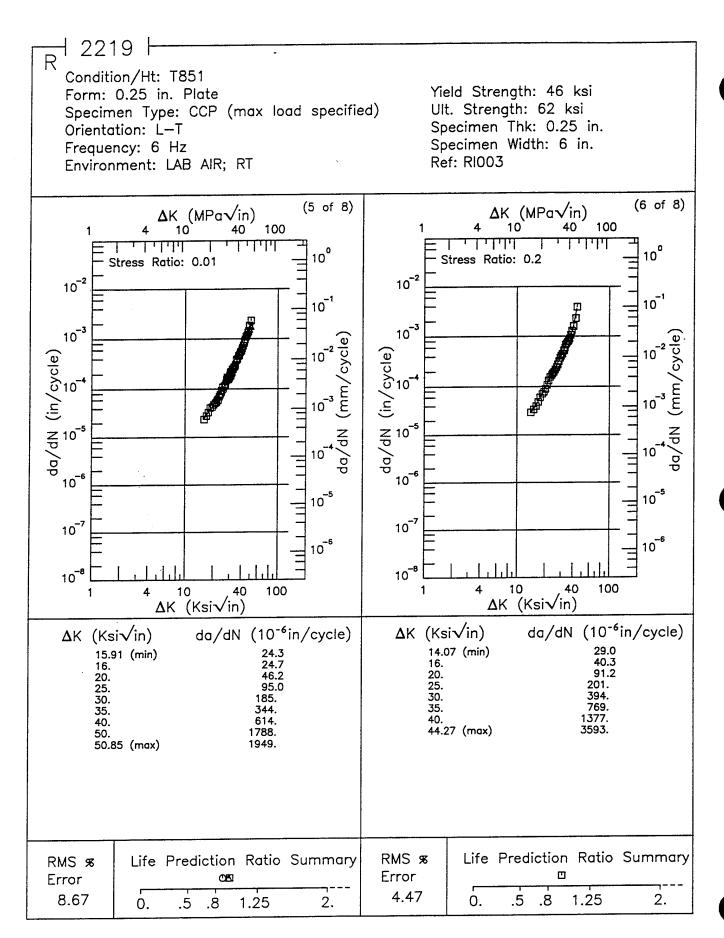


Figure 7.11.3.1.16 (Continued)

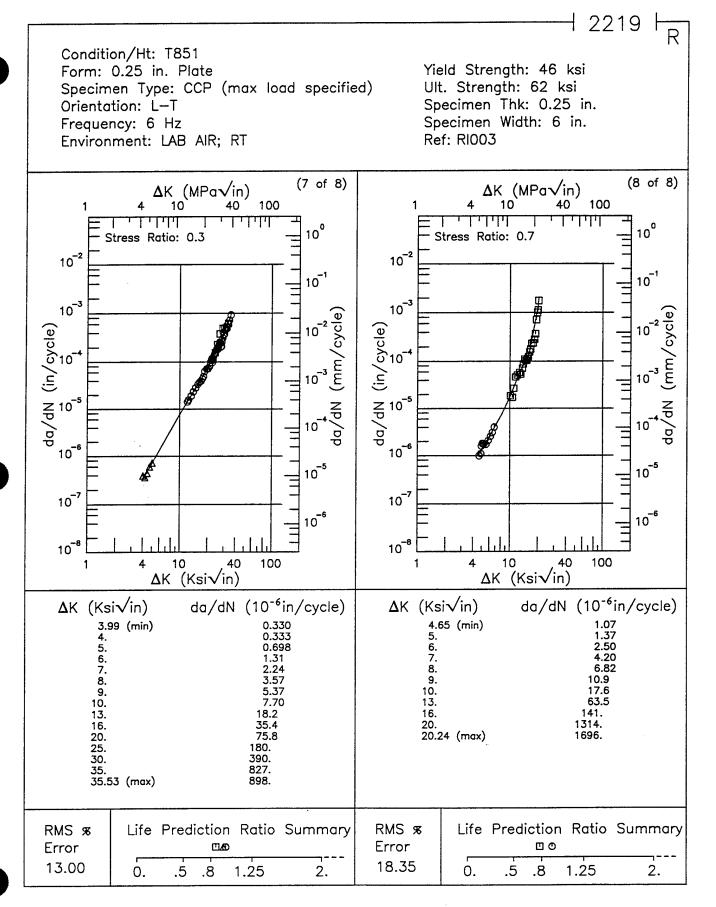


Figure 7.11.3.1.16 (Concluded)

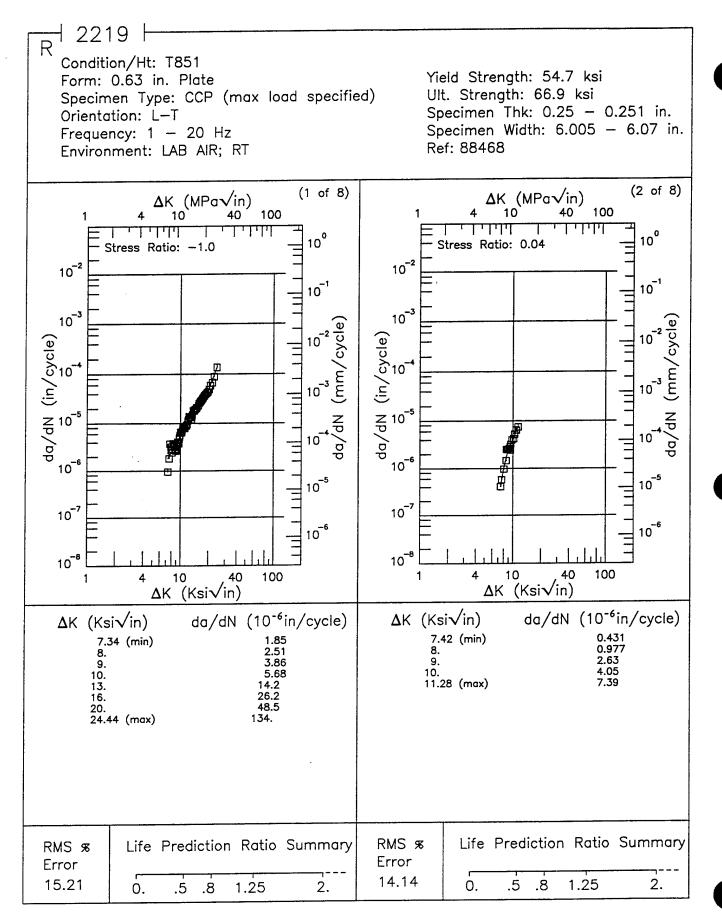


Figure 7.11.3.1.17

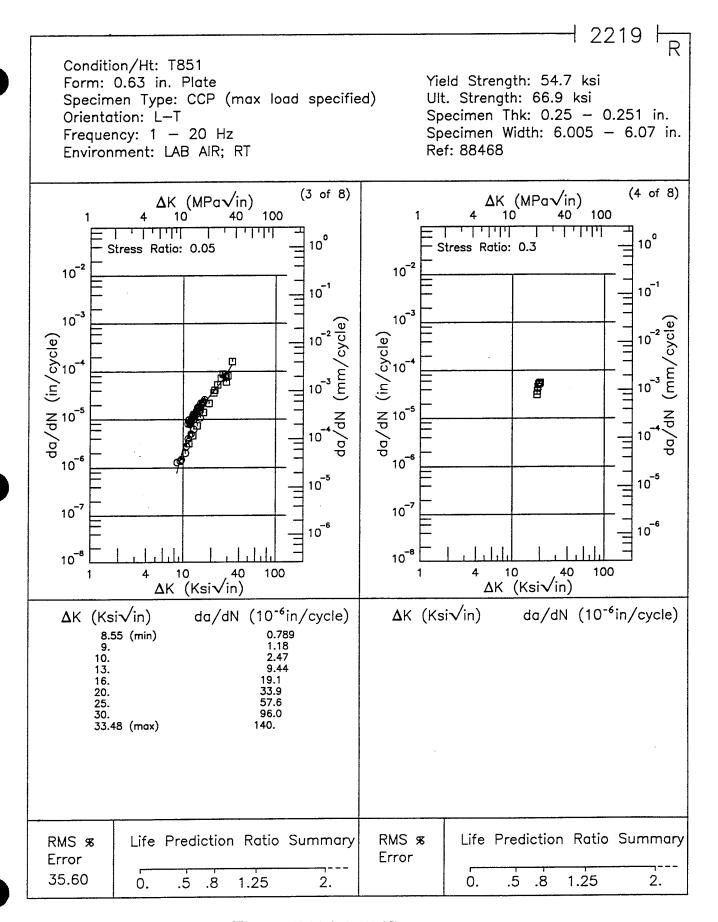


Figure 7.11.3.1.17 (Continued)

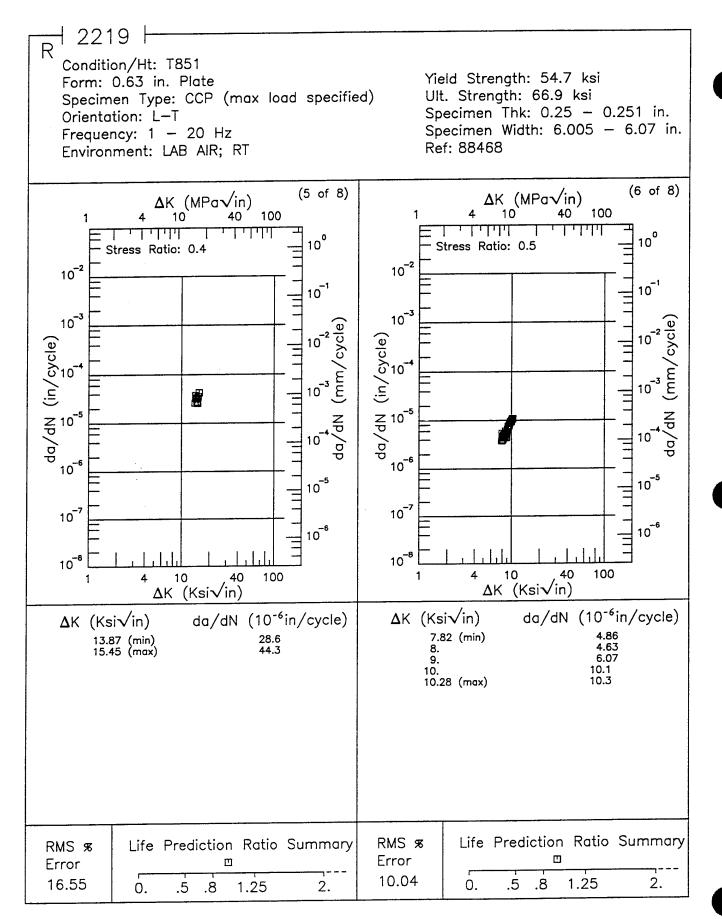


Figure 7.11.3.1.17 (Continued)

d 2219 l−R Condition/Ht: T851 Form: 0.63 in. Plate

Specimen Type: CCP (max load specified) Orientation: L-T

Frequency: 1 - 20 Hz

Environment: LAB AIR; RT

Yield Strength: 54.7 ksi Ult. Strength: 66.9 ksi

Specimen Thk: 0.25 - 0.251 in. Specimen Width: 6.005 - 6.07 in.

Ref: 88468

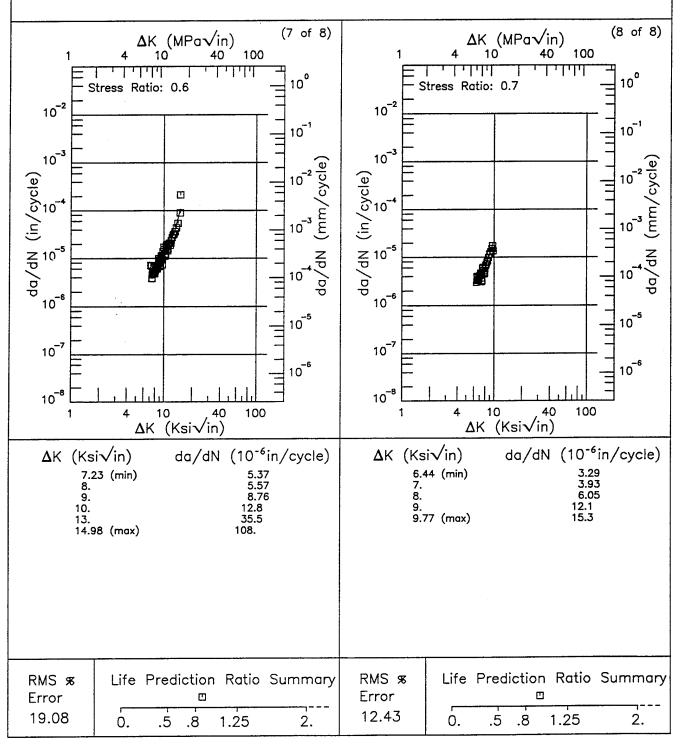


Figure 7.11.3.1.17 (Concluded)

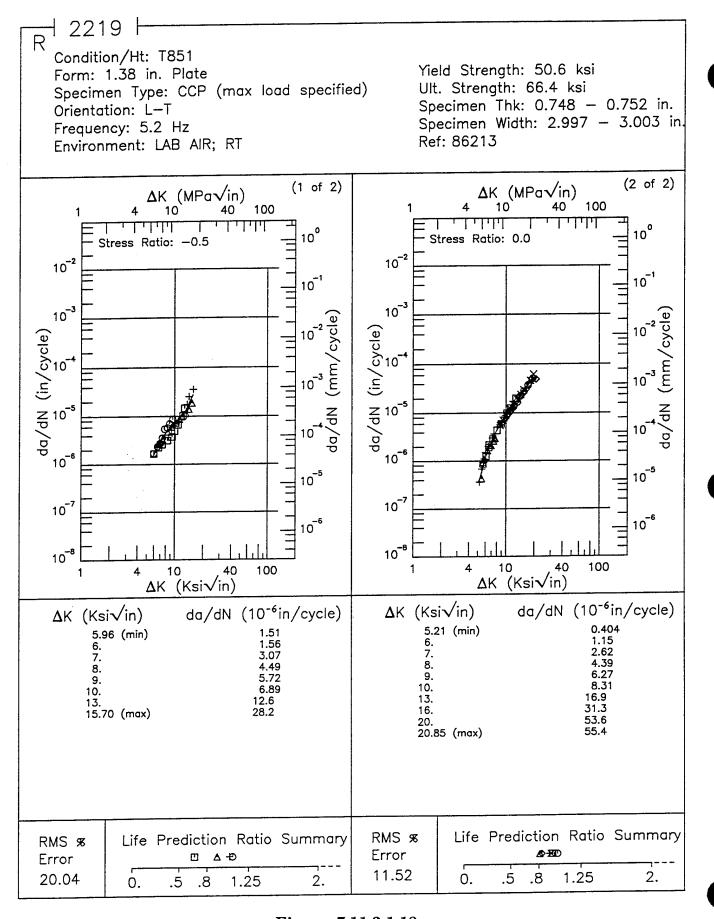


Figure 7.11.3.1.18

l 2219 뉴

Condition/Ht: T851 Form: 0.25 in. Plate

Specimen Type: CCP (max load specified)

Orientation: L-T Frequency: 3 Hz

Environment: LAB AIR; RT

Yield Strength: 46 ksi Ult. Strength: 62 ksi Specimen Thk: 0.25 in. Specimen Width: 6 in.

Ref: RI003

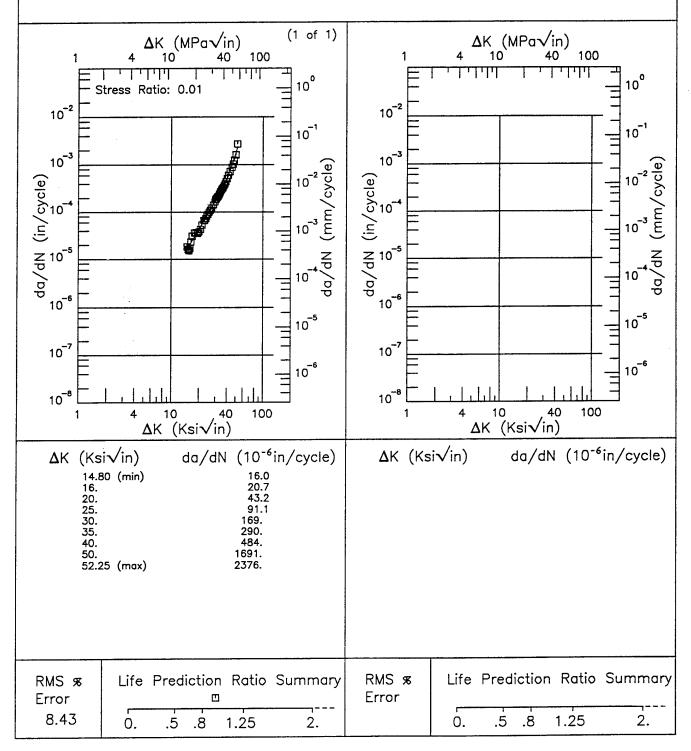


Figure 7.11.3.1.19

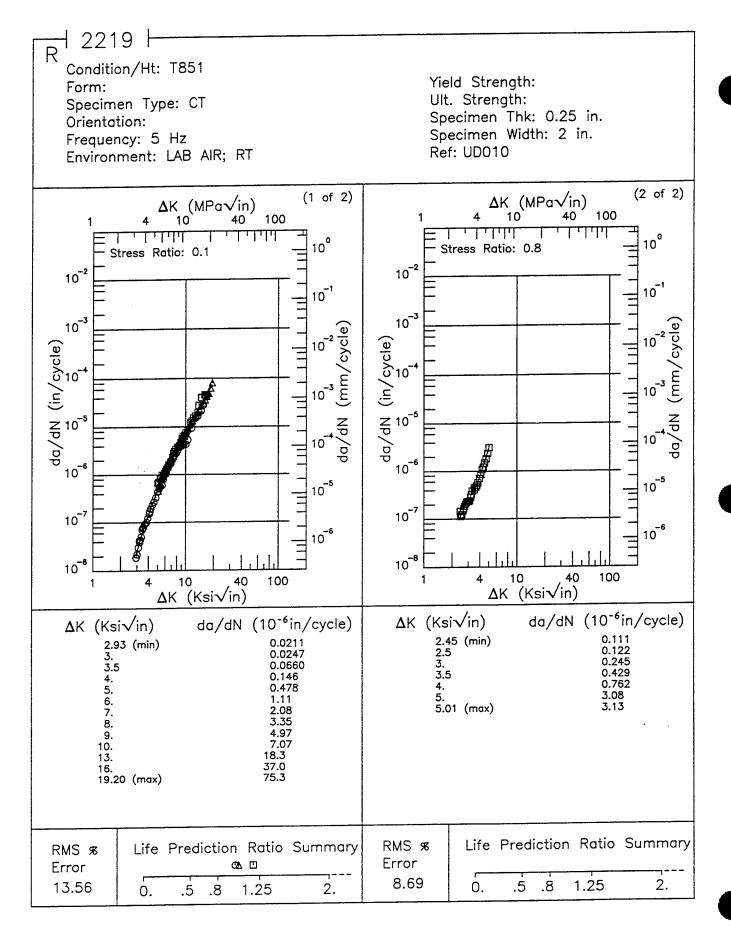


Figure 7.11.3.1.20

Condition/Ht: T851 Yield Strength: Form: Specimen Type: CT Ult. Strength: Orientation: Specimen Thk: 0.25 in. Specimen Width: 2 in. Frequency: 30 Hz Environment: LAB AIR; RT Ref: UD010 (1 of 2) (2 of 2) ΔK (MPa√in) 10 40 Δ K (MPa \sqrt{in}) 100 100 10⁰ 10° Stress Ratio: 0.3 Stress Ratio: 0.5 10-2 10-2 10⁻¹ 10 1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10 -3 10⁻⁶ 10-6 10⁻⁵ 10 5 10⁻⁷ 10⁻⁷ 10-6 10⁻⁶ 10 8 10 8 10 40 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) 4.29 (min) 5. 6.14 (min) 7. 8. 9. 0.503 0.703 6. 7. 2.26 8. 9. 10. 10. 3.61 13. 15.80 (max) 5.13 124. 19.30 (max) Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error 20.51 6.69 .5 0. .5 .8 1.25 2. 0. .8 1.25 2.

Figure 7.11.3.1.21

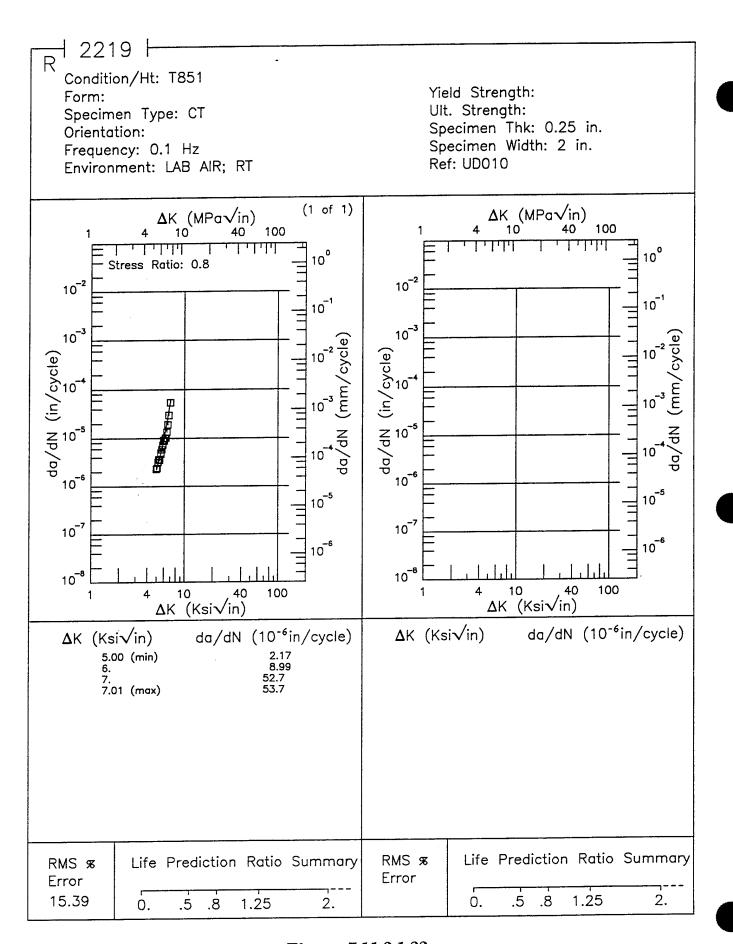


Figure 7.11.3.1.22

2219 R Condition/Ht: T851 Yield Strength: Form: Specimen Type: CCP (max load specified) Ult. Strength: Specimen Thk: 0.25 in. Orientation: Specimen Width: 3 in. Frequency: 5 Hz Ref: UD010 Environment: LAB AIR; RT (1 of 1) $\Delta K (MPa\sqrt{in})$ Δ K (MPa \sqrt{in}) 10 100 100 10° 10° Stress Ratio: -1.0 10⁻² 10-2 10 1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10 5 10 5 10⁻⁷ 10-7 10⁻⁶ 10 6 10-8 10⁻⁸ 100 100 10 40 10 40 ΔK (Ksi√in) ΔK (Ksi√in) Δ K (Ksi \sqrt{in}) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) 5.84 (min) 6. 7. 8. 9. 1.08 16. 20. 20.70 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 5.04 Ò. .5 .8 1.25 2. Ò. .5 8. 1.25 2.

Figure 7.11.3.1.23

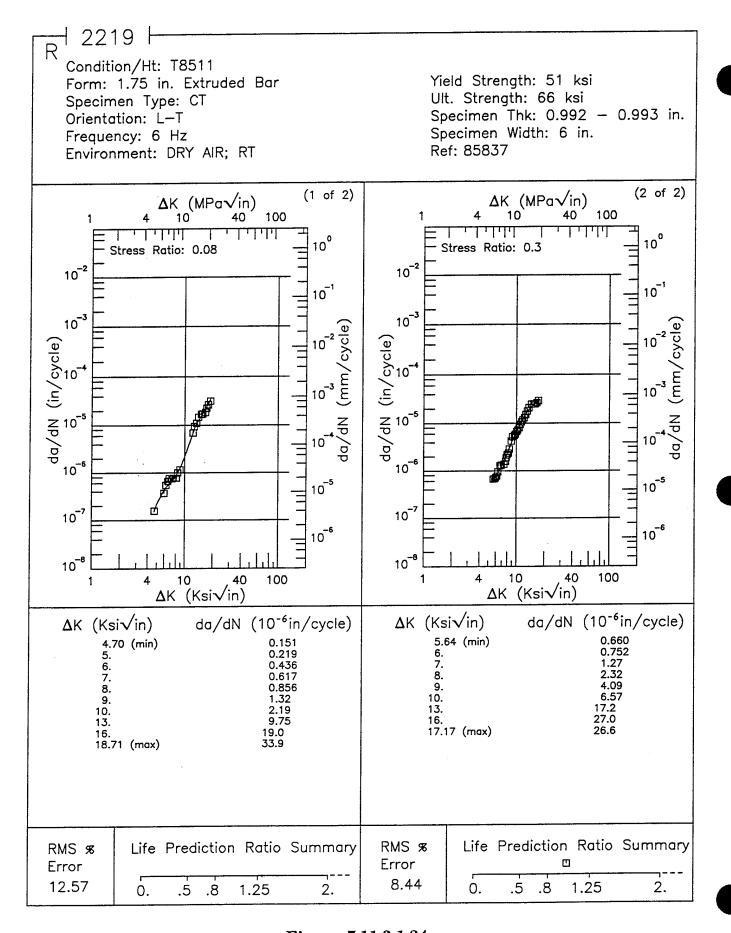


Figure 7.11.3.1.24

d 2219 l− R

Condition/Ht: T8511

Form: 1.75 in. Extruded Bar

Specimen Type: CT Orientation: L—T Frequency: 1 Hz

Environment: S.T.W.; RT

Yield Strength: 51 ksi Ult. Strength: 66 ksi Specimen Thk: 0.992 in. Specimen Width: 6 in.

Ref: 85837

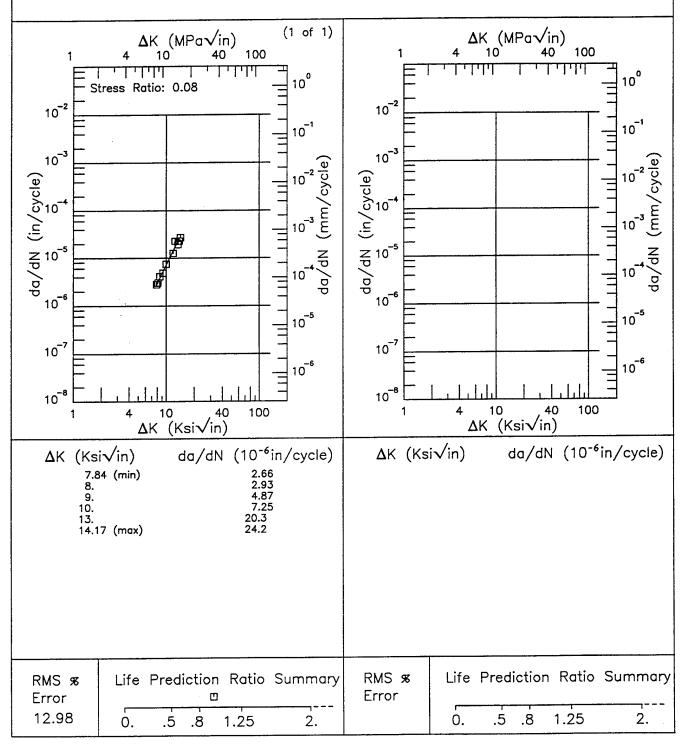


Figure 7.11.3.1.25

2219 H Condition/Ht: T8511 Yield Strength: 51 ksi Form: 1.75 in. Extruded Bar Ult. Strength: 66 ksi Specimen Type: CT Specimen Thk: 0.99 - 0.995 in. Orientation: T-L Specimen Width: 6 in. Stress Ratio: 0.08 Ref: 85837 (1 of 2) (2 of 2) ΔK (MPa√in) Δ K (MPa \sqrt{in}) 10 100 10 40 100 40 11111 ابابابا 11111 10° 10° Environment: S.T.W.; R.T. Frequency: 1. Hz Environment: Dry Air; R.T. Frequency: 6. Hz 10⁻² 10-2 10 1 10 10⁻³ 10⁻³ 10-2 da/dN (in/cycle) da/dN (in/cycle) 10 10⁻⁶ 10⁻⁶ 10 -5 10_2 10⁻⁷ 10⁻⁷ 10 -6 10 6 10 8 10⁻⁸ 10 40 100 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) ΔK (Ksi√in) 4.86 (min) 0.551 5.85 (min) 0.640 0.732 5. 6. 7. 0.639 6. 7. 2.50 8. 2.18 8. 3.03 9. 9. 10. 4.09 10. 13. 10.9 16.9 16. 13. 15.36 (max) 29.6 26.4 16.35 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 7.32 5.76 .5 1.25 2. 0. .8 .5 .8 1.25 2. 0.

Figure 7.11.3.1.26

┨ 2219 ├─

Condition/Ht: T852 Form: 6 in. Billet Specimen Type: CT Orientation: L—T

Frequency: 6 Hz Environment: DRY AIR; RT Yield Strength: 50 ksi Ult. Strength: 65 ksi Specimen Thk: 0.997 in. Specimen Width: 6.19 in.

Ref: 85837

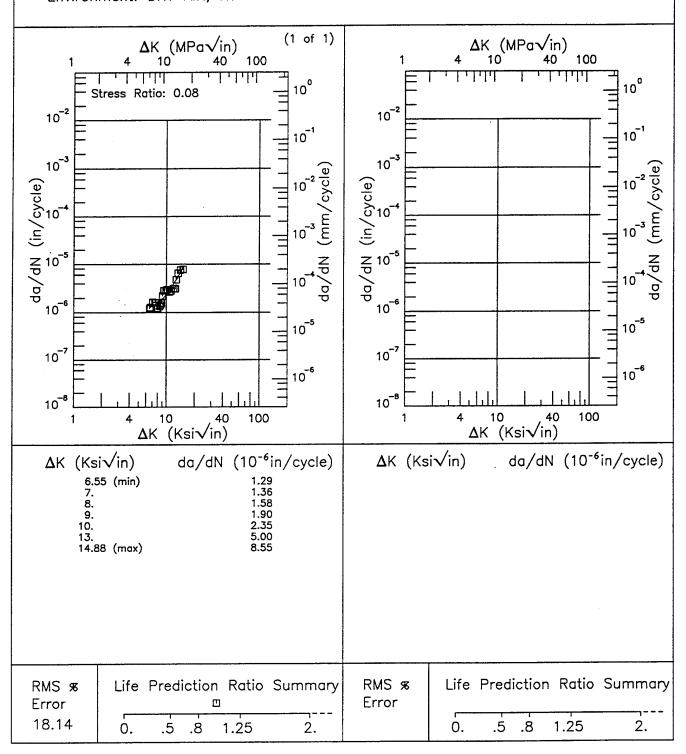


Figure 7.11.3.1.27

2219 H Condition/Ht: T852 Yield Strength: 49.2 - 50.7 ksi Form: 2 - 5.5 in. Forging Ult. Strength: 62.5 - 65 ksi Specimen Type: CT Specimen Thk: 1 in. Orientation: L-T Specimen Width: 3.805 in. Stress Ratio: 0.33 Ref: AL001 Frequency: 2 - 20 Hz (2 of 2) (1 of 2) ΔK (MPa√in) Δ K (MPa \sqrt{in}) 100 10 10 100 11111 T1.1111 11111 10° 10° Environment: S.T.W.; R.T. Environment: Dry Air; R.T. 10⁻² 10-2 10⁻¹ 10-1 10⁻³ 10-3 da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10⁻⁶ 10⁻⁵ 10 -5 10⁻⁷ 10⁻⁷ 10 6 10 6 10-8 10⁻⁸ 40 10 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) 1.34 1.64 0.552 0.654 5.69 (min) 5.69 (min) 6. 7. 8. 7. 8. 9. 1.12 9. 2.90 10. 10. 13. 16.00 (max) 16. 20. 20.09 (max) Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error 16.26 1.25 2.

Figure 7.11.3.1.28

2.

.5

.8

0.

40.53

.8

.5

0.

1.25

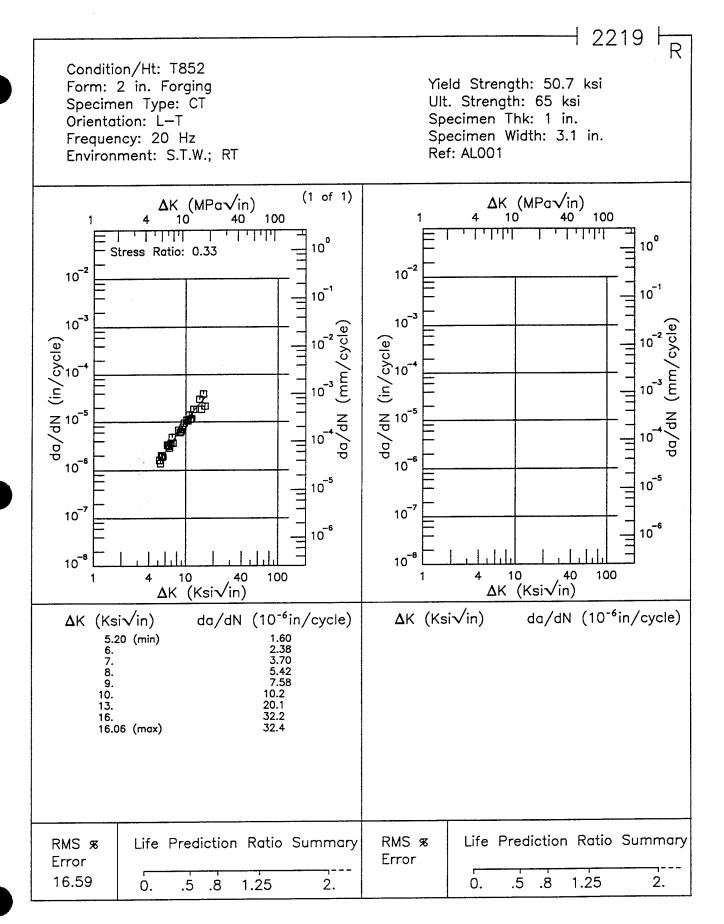


Figure 7.11.3.1.29

⊢ 2219 ŀ Condition/Ht: T852 Yield Strength: 46.4 - 50.6 ksi Form: 2 - 5.5 in. Forging Ult. Strength: 61.6 - 66.5 ksi Specimen Type: CT Specimen Thk: 1 in. Orientation: T-L Specimen Width: 3.805 in. Stress Ratio: 0.33 Ref: AL001 Frequency: 2 - 20 Hz (2 of 3) (1 of 3) Δ K (MPa \sqrt{in}) Δ K (MPa \sqrt{in}) 100 100 10 1 10° 11111 11111 10° Environment: H.H.A.; R.T. Environment: Dry Air; R.T. 10⁻² 10-2 10-1 10⁻¹ 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10-6 10⁻⁵ 10 -5 10⁻⁷ 10-7 10⁻⁶ 10 6 10⁻⁸ 10 8 40 100 10 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 5.75 (min) 5.69 (min) 6. 7. 8. 6. 7. 8. 2.89 9. 9. 10. 10. 13. 13. 16. 991. 19.72 (max) 1034. 20.32 (max) Life Prediction Ratio Summary RMS % Life Prediction Ratio Summary RMS % Error Error

Figure 7.11.3.1.30

2.

48.72

.5

0.

.8

1.25

47.34

0.

.5 .8

1.25

2.

1 2219 | E

Condition/Ht: T852

Form: 2 - 5.5 in. Forging

Specimen Type: CT Orientation: T-L Stress Ratio: 0.33 Frequency: 2 - 20 Hz Yield Strength: 46.4 - 50.6 ksi Ult. Strength: 61.6 - 66.5 ksi

Specimen Thk: 1 in. Specimen Width: 3.805 in.

Ref: AL001

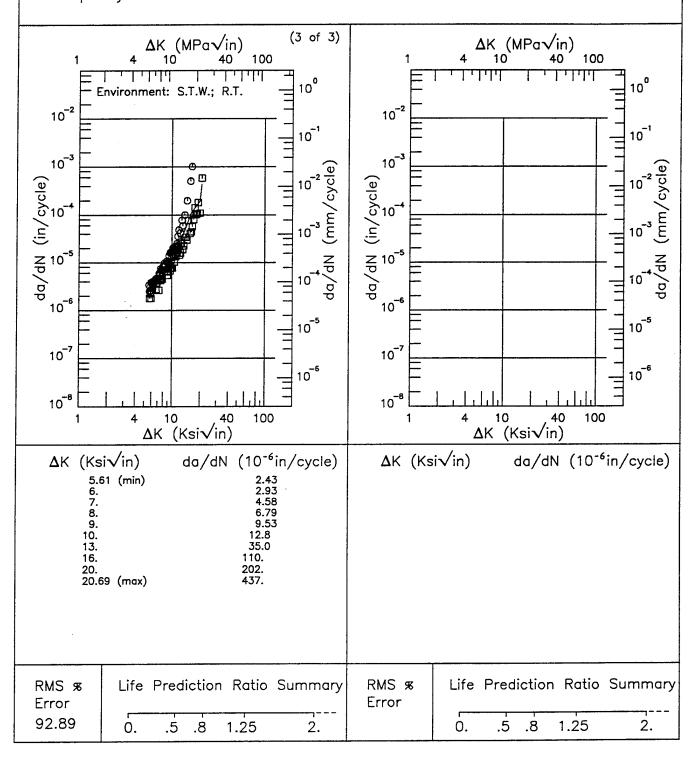


Figure 7.11.3.1.30 (Concluded)

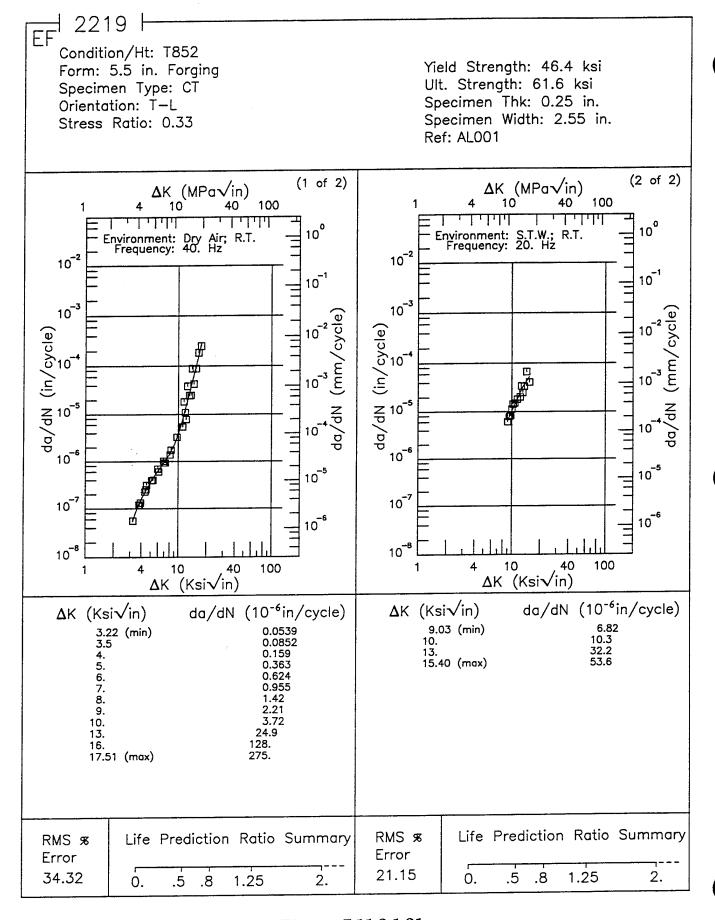


Figure 7.11.3.1.31

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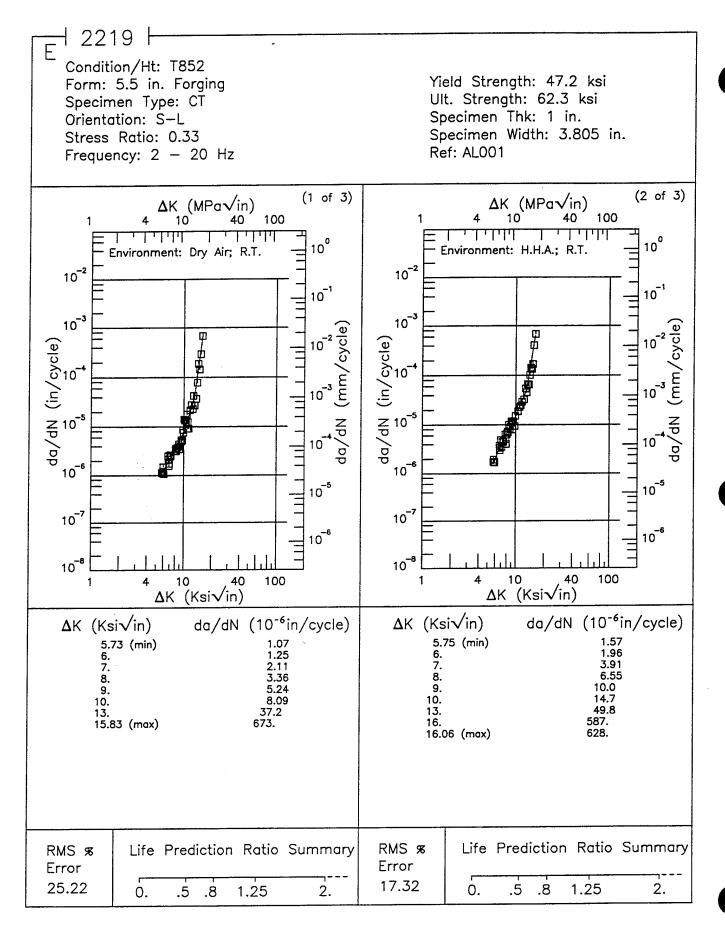


Figure 7.11.3.1.32

d 2219 ⊢

Condition/Ht: T852 Form: 5.5 in. Forging Specimen Type: CT Orientation: S-L Stress Ratio: 0.33

Yield Strength: 47.2 ksi Ult. Strength: 62.3 ksi Specimen Thk: 1 in. Specimen Width: 3.805 in.

Ref: AL001

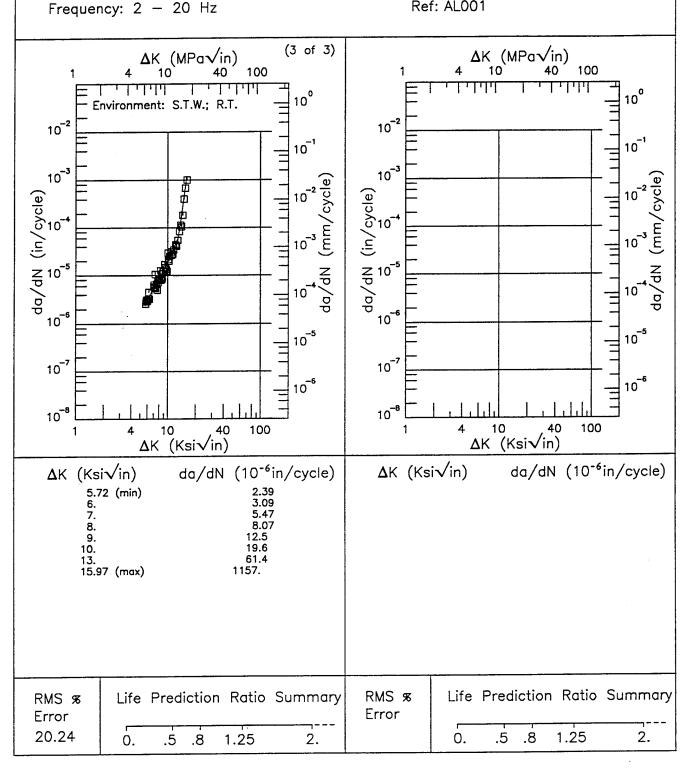


Figure 7.11.3.1.32 (Concluded)

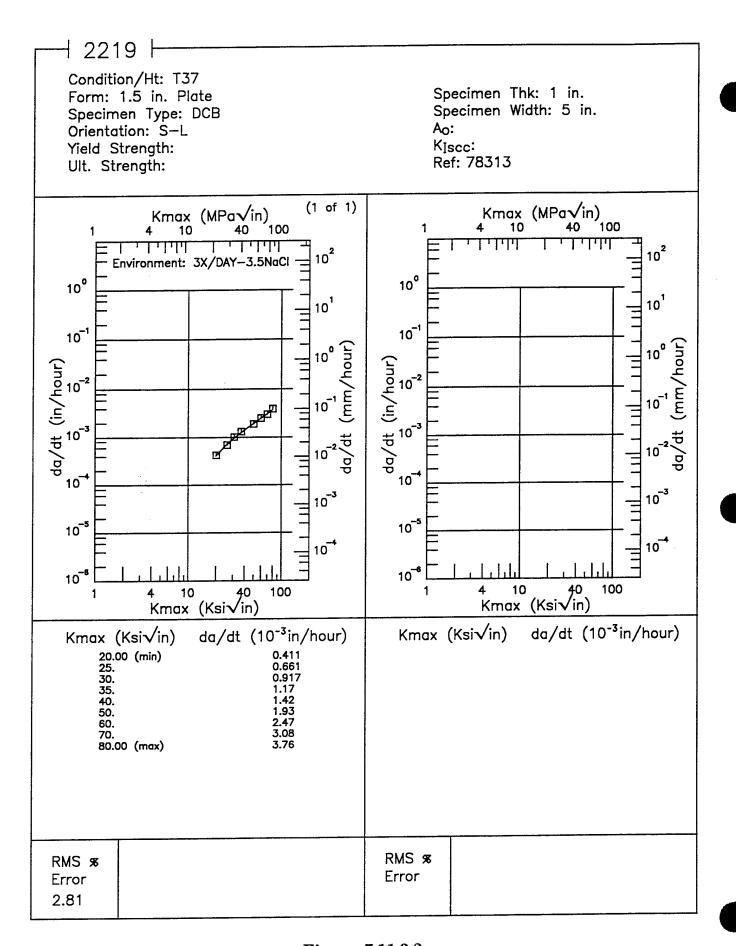


Figure 7.11.3.2

TABLE 7.11.3.3

K_{Isce} SUMMARY FOR ALUMINUM ALLOY 2219

		Test		Vield			Specimen		Prod			1	Test	F	
Condition/ Heat Treat	Frod Form	Temp (°F)	Spec Or.	Str (Ksi)	Envir.	Thick (in)	Design	Width (in)		Crack (in)	Kai√in)	Ksivin)	Time (min)	lest Date	Refer
					Industrial Atm	1	CT	2	2		27.1	18	1	1973	88898
T37	д	R.T.	S-L	42.1	Salt-Dichromate- Acetate	1	CT	2	2	ŀ	27.1	6	:	1973	86688
					Seacoast Atm	1	CT	3	ë	***	27.1	13	1	1973	86688
					Ç	1	DCB	5.5	1.75	i	32	30.5	75240	1976	R1006
					F.C.S.	1	DCB	5.5	1.75	ŀ	32	27.5	75240	1976	RI006
	·					1	DCB	5.5	1.76	i	32	27	75240	1976	R1006
			L-T	20	8.0.8.	1	DCB	5.5	1.75	•	32	37*	59100	1976	RIOGE
						1	DCB	5.5	1.75		82	39*	61680	1976	Rioos
T851	ፈ	R.T.			į	1	DCB	5.5	1.75	!	32	33+	51720	1976	R1006
					S.T.W.	1	DCB	5.5	1.75	ij	32	36+	83520	1976	R1006
			T-L	48	S.T.W.	1	вэд	2.5	1.75		30	27	51720	1976	R1006
				58	3.5% NaCl	1	DCB	4	1		27	18	1	1968	84331
			S-L		## ## P	1	DCB	5.5	1.75		30	29.5	51720	1976	R100 6
				:	W.T.S	1	DCB	5.5	1.75	ï	30	29.5	83520	1976	RIOG
:					Industrial Atm	1	\mathbf{cr}	2	2		19.6	19		1973	86688
T87	പ	R.T.	S-L	57.7	Salt-Dichromate. Aretate	1	£	8	2	•	9:61	61	***	1973	88998
					Seacoast Atm	1	CT	2	2		19.6	19		1973	86688

 $^{+}$ specimen thickness does not meet minimum requirements of $2.5~(rac{K_{Loc}}{\sigma_{sr}})^{2}$

1 of 1

TABLE 7.12.1.2

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2324 AT ROOM TEMPERATURE

|--|

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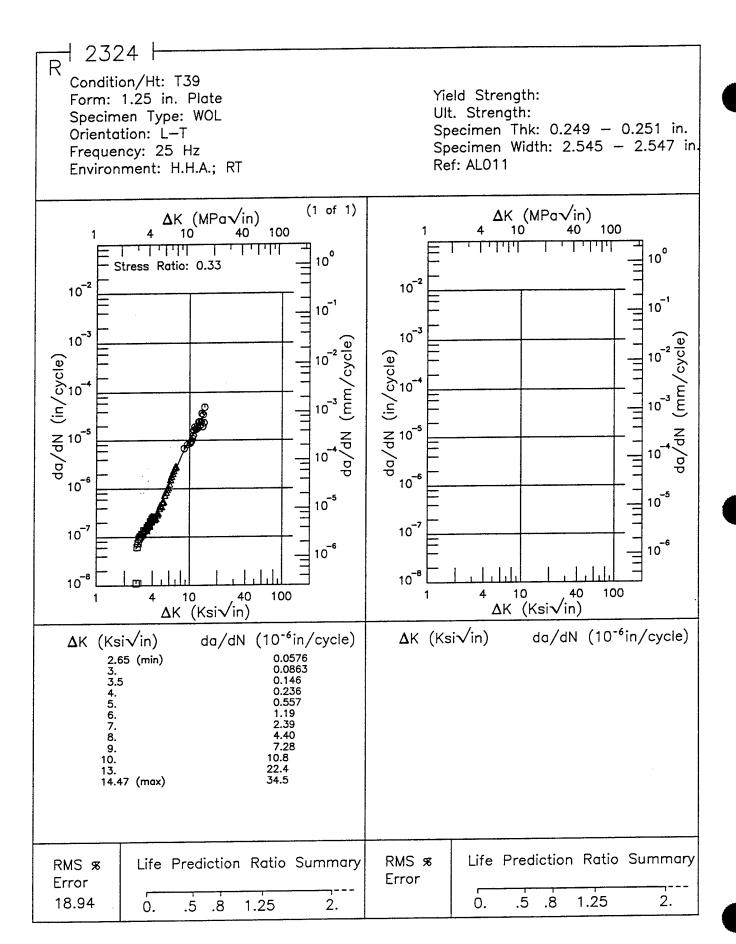


Figure 7.12.3.1

TABLE 7.13.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS FOR ALUMINUM 2000/6000 SERIES ALLOY 2419 AT ROOM TEMPERATURE

Product					K_{I_G}	$K_{Ic}~(ksi\!\sqrt{in})$	<u>a</u>)			
Form	Condition/Heat Treatment			92	Specimen Orientation	n Orier	ıtation			
			L-T			T-T			S-L	
		Mean K _{ie}	Std Dev	и	Mean K _{1c}	Std Dev	u	Mean K _{le}	Std Dev	ц
Plate	T851	42.6	5.3	23	37.2	4.2	52	24.8	2.5	3

1 of 1

TABLE 7.13.1.2.1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2419 AT ROOM TEMPERATURE

		100.0	
Air	•	20.0 50.0	51.72
ENVIRONMENT: Lab Air	2GR (10)	10.0	6.5
ONMEN	FC	6.0	
SNVIR		2.5	
	FREQ (Hz)		30
	я		0.1
: L-T	PRODUCT		PLATE
ORIENTATION: L-T	CONDITION/ HEAT TREATMENT		T851

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK 2419 AT ROOM TEMPERATURE

ORIENTATION: T-L

ENVIRONMENT: Lab Air

		ಂ	
.		₩ ⊒	
		100.0	
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	- F	6	
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<b>'</b>	ΔΚ Level (Ksi√in)	20.0	
	-		
	, o	10.0	
	6	•	5.32
	- T	•	
			143
(5)			
(Š)			
FCGR (10 ⁻⁶ trlcycle)		6.0	
		<b>***** </b>	
		2.5	
	•		
FREG	(Hz)		
<u>~</u>			30
<b>6.</b>	@ @ D		9
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	_		
	<b>4</b>		
			0.1
			0.1
			0.1
			0.1
			0.1
			0.1
			0.1
E			0.1
Tee			0.1
CT			0.1
ист			
UCT			
DUCT			
ODUCT			PLATE 0.1
RODUCE			
RODUCT	FORM		
PRODUCT	FORM		
4	FORM		PLATE
4	FORM		PLATE
4	FORM		
4	FORM		PLATE

### **TABLE 7.13.2.1**

																								_	—
		REFER	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	1000U	UD004	UD004	MPC01												
		DATE	1978	1978	1978	1978	1978	1978	1978	1975	1975	1975	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978
		STAN DEV			-									5.3											
	K _{Io}	K. MBAN												42.6											
		K. (Ketvin.)	49.10	44.60	46.50	43.90	45.50	39.20	41.30	34.90	34.20	35.30	38.00	60.20	48.90	43.00	43.00	63.00	39.70	40.70	46.40	36.90	48.50	39.00	38.60
		2.5 * (K, TYS)* (in.)	2.40	1.98	2.11	1.84	1.98	1.44	1.60	1.14	1.09	1.17	1.29	2.30	2.16	1.68	1.64	2.50	1.36	1.44	1.84	1.16	1.98	1.26	1.19
	CRACK		3.129	3.158	3.089	3.087	3.081	3.026	3.070	1	ı	i	1.513	3.100	3.103	2.567	3.059	3.090	2.017	2.058	2.624	2.596	3.193	2.610	2.603
9 K _{Ic}	z	DESIGN	C.	СŢ	CI	Ç	C.T.	CT	cr	CT	CT	CT	CT	СT	СТ	CT	СT	СT	CT	CT	СŢ	CŢ	СŢ	СŢ	ರ
2419	SPECIMEN	THICK (in.)	2.506	2.583	2.945	2.900	2.897	2.905	2.947	2.000	2.000	2.000	1.501	2.934	2.937	2.376	2.519	2.558	1.999	1.999	2.374	1.750	2.933	1.750	1.750
ALUMINUM	ΣC	WIDTH (fn.)	6.017	6.969	6.057	6.063	6.041	6.052	6.020	4.000	4.000	4.000	3.026	5.962	5.967	5.033	5.998	6.069	4.034	4.035	4.951	4.992	6.025	6.019	5.006
ALUI		YTELD STR (Kal)	50.1	50.1	60.5	50.7	60.8	61.1	51.4	51.7	51.7	51.7	62.1	62.1	62.2	52.4	52.7	63.0	53.2	53.2	53.4	53.8	54.0	64.9	65.8
		SPEC			l	<b>ل</b>							•	5			•		•						
		TEST TEMP (°F)												R.T.											
	PRODUCT	THICK (in.)	2.66	2.55	2.90	2.90	2.90	2.90	2.90	2.00	2.00	2.00	2.66	2.90	2.90	2.90	2.50	2.50	3.00	3.00	2.90	2.90	2.90	2.90	2.90
	PROI	FORM												Plate											
		CONDITION												T851	-										

## TABLE 7.13.2.1 (CONTINUED)

					1 ~ 1	ALUMINUM	[ 2419	9 K _{Io}		ALUMINUM 2419 K ₁₀					
	PRO	PRODUCT				02	SPECIMEN	z	CRACK			Kı			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN		2.6 • (K _{t.,} TYS)* (in.)	K. (Krivin.)	K. MEAN	STAN DEV	DATE	REFER
		1.75			46.8	5.033	1.761	CT	2.567	1.48	36.30			1978	MPC01
		1.76			47.0	5.012	1.758	CT	2.556	1.40	35.70			1978	MPC01
		1.76			47.0	2.991	1.399	СT	1.585	1.19	32.80			1978	MPC01
		1.76			47.2	4.994	1.762	ст	2.597	1.52	37.10			1978	MPC01
		1.76			47.4	3.019	1.397	CT	1.570	1.29	34.20			1978	MPC01
		1.75			47.4	4.994	1.757	CT	2.597	1.62	37.10			1978	MPC01
		1.76			47.4	4.985	1.761	$\mathbf{c}\mathbf{r}$	2.692	1.52	37.00			1978	MPC01
		1.75			47.6	5.004	1.762	CT	2.602	1.60	38.10			1978	MPC01
		1.75			47.6	2.994	1.397	CT	1.587	1.29	34.70			1978	MPC01
		1.75			47.6	4.987	1.762	cr	2.593	1.60	38.20			1978	MPC01
		1.75			47.7	2.995	1.398	Ľ	1.587	1.12	32.10			1978	MPC01
1361	Plate	1.76	R.T.	T-L	47.7	4.975	1.759	CT	2.587	1.36	35.70	37.2	4.2	1978	MPC01
		2.65			49.0	4.998	2.401	CT	2.649	2.11	45.30			1978	MPC01
		1.76			49.0	2.981	1.402	cr	1.550	1.29	35.30			1978	MPC01
		2.90			49.2	6.000	2.961	CT	3.180	1.84	42.40			1978	MPC01
		2.90			49.4	6.028	2.900	cr	3.195	1.48	38.20			1978	MPC01
		2.90			49.4	6.019	2.896	CT	3.130	2.20	46.50			1978	MPC01
		2.00			49.7	2.996	1.402	CT	1.658	0.99	31.80			1978	MPC01
		2.90			49.9	4.982	2.374	СŢ	2.690	1.60	40.40			1978	MPC01
		2.90			60.1	9.000	2.940	ភ	3.180	1.84	43.30			1978	MPC01
		2.56			60.3	5.004	2.401	CT	2.652	1.68	41.50			1978	MPC01
		2.90			50.5	6.014	2.912	CT	3.067	1.08	33.70			1978	MPC01
		2.90			50.7	5.061	1.747	CT	2.576	1.56	40.30			1978	MPC01

# TABLE 7.13.2.1 (CONTINUED)

<del></del>			r	<del></del>	7	I				I		1	<del></del>					Ī	Ī			
		REFER	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	MPC01	UD004	UD004	MPC01	UD004	MPC01
		DATE	1978	1978	1978	1978	1978	1978	1978	8/61	8/61	1978	1978	8261	1978	1978	1978	1975	1975	1978	1975	1978
		STAN											Cont'd									
	K _I °	K, MBAN											Cont'd									
		K. (Kelvin.)	40.40	36.10	42.40	34.80	38:00	29.10	42.30	29.10	40.00	39.40	36.50	43.40	34.90	36.50	35.10	90.60	91.30	43.10	32.30	39.60
		2.6 * (K _L ,TYS)* (in.)	1.56	1.22	1.72	1.15	1.36	0.78	1.68	0.78	1.48	1.44	1.22	1.72	1.08	1.19	1.12	0.85	0.89	1.68	0.96	1.40
	CRACK	LENGTH (in.) A	3.205	3.092	2.594	1.568	2.644	2.053	3.085	2.048	2.672	3.166	1.541	2.565	2.071	2.069	3.163	:	ţ	2.563	ï	2.576
19 K ₁₆	Z.	DESIGN	CT	C.	CT	CT	CT.	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	СŢ	cr	CT	cr	cr
1 2419	SPECIMEN	THICK (in.) B	2.931	2.837	1.747	1.500	2.375	1.996	2.511	1.999	1.746	2.534	1.403	1.747	1.999	1.999	2.501	2.000	2.000	1.746	2.000	1.748
ALUMINUM	<b>6</b> 2	WIDTH (in.) W	6.047	5.946	4.989	3.015	4.989	4.026	6.049	4.016	6.043	6.992	3.022	6.029	3.983	3.979	5.968	4.000	4.000	5.026	4.000	5.051
ALU		YIBLD STR (Kal)	60.9	61.0	61.0	51.1	61.1	51.2	51.2	51.2	51.4	51.4	61.6	62.1	62.3	62.3	52.3	62.5	52.5	62.5	52.5	62.6
		SPEC				*						Ţ.L	Cont'd									
		TEST TEMP (°F)										R.T.	Cont'd									
	PRODUCT	THICK (fa.)	2.90	2.90	2.90	2.65	2.90	3.00	2.50	3.00	2.90	2.50	3.00	2.90	3.00	3.00	2.56	2.00	2.00	2.90	2.00	2:90
	PROI	FORM										Plate	Cont'd									
		CONDITION										T851	Cont'd									

## TABLE 7.13.2.1 (CONTINUED)

PRO							1								Kı
	PRODUCT				oc.	SPECIMEN	z	CRACK			K _I				•
FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIELD STR (Kal)	WIDTH (in.)	THICK (in.)	DESIGN	LENGTH (In.)	2.5 * (K _{L,} TYS)* (in.)	K. (Kelvin.)	K. MEAN	STAN	DATE	REFER	K. MEAN
	2.90			62.8	4.983	1.749	CT	2.641	1.12	35.90			1978	MPC01	
	2.90			62.8	6.048	1.750	CT	2.625	66'0	33.40			1978	MPC01	
	2.56			62.9	5.973	2.461	CT	3.046	1.19	36.60			1978	MPC01	
	2.90			53.5	4.998	1.750	CT	2.649	1.08	95.80			1978	MPC01	
T951 Plate Cont'd Cont'd	2.90	R.T. Cont'd	T.L Cont'd	53.6	5.985	2.937	CT	3.172	1.80	46.00	Cont'd	Cont'd	1978	MPC01	
	2.90			53.6	6.063	1.750	CT	2.577	1.05	35.00			1978	MPC01	
	2.90			53.7	4.977	2.374	CT	2.638	1.26	38.60			1978	MPC01	
	2.66	•		63.9	3.020	1.498	CT	1.510	0.87	32.10			1978	MPC01	
	2.90			64.6	5.029	1.747	CT	2.565	1.36	40.70			1978	MPC01	
	2.00	-		51.7	4.000	2.000	cr	-	0.49	22.90			1976	UD004	
	2.00			51.7	4.000	2.000	cr		0.50	23.20			1976	UD004	
	2.00	E	I	51.7	4.000	2.000	CT		0.49	22.90			1975	UD004	
	2.90	<b>K.1</b> .	<del>,</del>	52.4	2.006	1.001	cr	1.023	0.62	24.20	24.0	1.6	1978	MPC01	
•	2.90	•	1	63.2	1,981	1.001	cr	1.030	0.48	23.80			1978	MPC01	
	2.90			54.4	1.994	1.001	cr	1.037	0.60	26.80			1978	MPC01	
	3.00	•	I	50.4	2.018	0.999	CT	1.029	0.67	24.40			1978	MPC01	
T851 Plate	3.00	R.T.	J.S.	50.4	1.989	1.000	СT	1.034	0.48	22.50	24.8	2.6	1978	MPC01	
	3.00			61.6	1.994	1.000	CT	0.997	0.70	27.40			1978	MPC01	
	2.00			47.6	4.000	2.000	CŢ		1.17	32.60			1975	UD004	
T851 Plate	2.00	200		47.6	4.000	2.000	CT		1.19	32.90	92.4	9.0	1976	UD004	
	2.00			47.6	4.000	2.000	CT		11.11	91.70			1975	UD004	

# TABLE 7.13.2.1 (CONCLUDED)

					ALU	MINCIN	[ 241	ALUMINUM 2419 K _{Io}							
	PRODUCT	oucr				<b>0</b> 2	SPECIMEN	z				K _I °			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YTELD STR (Kel)	WIDTH (in.)	THICK (in.) B	DRBIGN	LENGTH (in.) A	2.5 ° (K _{L,} TYS)* (in.)	K. (Keivin.)	K. MEAN	BTAN DEV	DATE	REFER
		2.00			47.1	4.000	2.000	CT		26'0	29.30			1975	UD004
T851	Plate	2.00	200	T.L	47.1	4.000	2.000	CT	:	0.94	28.90	28.8	0.5	1975	UD004
		2.00			47.1	4.000	2.000	CT		0.90	28.30			1975	UD004
		2.00			43.8	4.000	2.000	CT	;	1.32	31.80			1975	UD004
1861	Plate	2.00	300		43.8	4.000	2.000	СŢ	1	1.35	32.20	32.0	0.2	1975	UD004
		2.00			43.8	4.000	2.000	CT	:	1.33	31.90			1975	UD004
, and a		2.00	Ş		43.2	4.000	2.000	CT		1.09	28.50			1975	UD004
1851	Fiste	2.00	906	7:1	43.2	4.000	2.000	CT	:	1.12	28.90	28.7	0.3	1975	UD004

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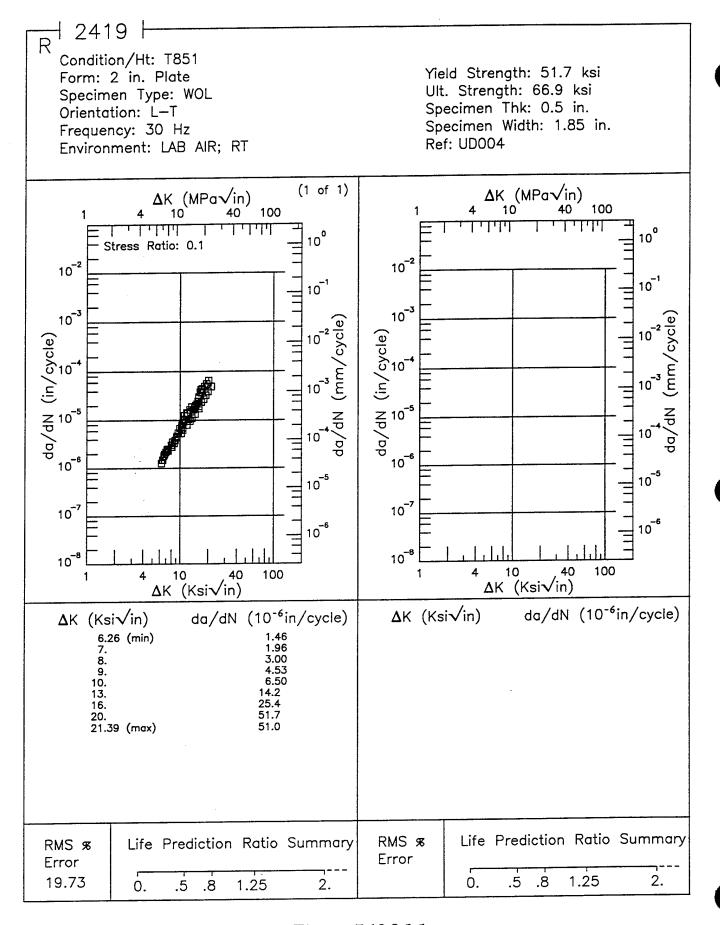


Figure 7.13.3.1.1

┨ 2419 📙

Condition/Ht: T851 Form: 2 in. Plate Specimen Type: WOL Orientation: T—L

Frequency: 30 Hz Environment: LAB AIR; RT Yield Strength: 52.5 ksi Ult. Strength: 66.6 ksi Specimen Thk: 0.5 in. Specimen Width: 1.85 in.

Ref: UD004

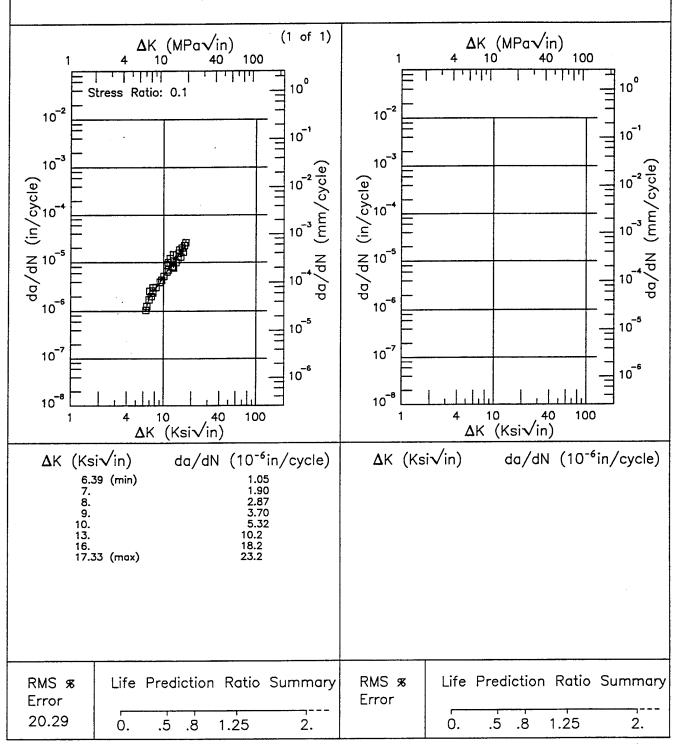


Figure 7.13.3.1.2

### **TABLE 7.14.1.1**

MEAN PLANE STRAIN FRACTURE TOUGHNESS FOR ALUMINUM 2000/6000 SERIES ALLOY 2618 AT ROOM TEMPERATURE

			п	12
		S-L	Std Dev	1.2
			Mean K _{te}	14.9
<u>a</u>	ntation		ц	ŀ
$K_{Ic}~(ksi\sqrt{in})$	n Orie	T-L	Std Dev	:
$K_{Ic}$	Specimen Orientation		Mean Std K _{1e} Dev	:
	S		Ħ	:
		L-T	Std Dev	:
			Mean K _{lc}	
1	Condition/Heat Treatment			T651
Product	Form			Plate

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK

2618 AT ROOM TEMPERATURE	ENVIRONMENT: Lab Air	FCGR (10* in/eycle)	) ΔK Level (Ksi√in)	2.5 5.0 10.0 20.0 50.0 100.0	77.7
2618 AT ROOM TEMPERATURE		OHRA	R (Hz)		0.4
2618 AT RO	: L-T	PRODITCE	FORM		SHEET
	ORIENTATION: L-T	NOTEIGNOS	HEAT TREATMENT		T81

### **TABLE 7.14.2.1**

ALUMINUM	ALUM	ALUM	ALUM	ALUM	2	INCIN	1 2618	.8 K _{Io}							
1	PROI	PRODUCT			,	- SE	SPECIMEN	Z	CRACK			K			
CONDITION	FORM	THICK (in.)	TEST TEMP (°F)	SPEC	YIRLD STR (Kel)	WIDTH (in.) W	THICK (in.) B	DESIGN	LENGTH (In.) A	2.6 * (K _{ke} ,TYS)* (in.)	K. (Keivin.)	K. MEAN	STAN	DATE	REFER
•		3.34			54.8	1.990	0.999	CT	1.014	0.21	15.90			1973	86213
		3.34			64.8	2.000	0.999	L	1.016	0.21	15.80			1973	86213
		3.34			55.1	2.000	0.999	CT	1.011	0.23	16.80			1973	86213
		3.34		1	55.1	2.000	0.999	cr	1.024	0.22	16.50			1973	86213
		3.34			56.3	2.000	0.999	CT	1.028	0.15	13.60			1973	86213
	E C	3.34	E		56.3	2.000	0.999	cr	1.033	0.16	14.20			1973	86213
-	Piat I	3.34		3	56.3	2.000	0.999	CT	1.034	0.16	14.10	14.9	1.2	1973	86213
		3.34			56.8	2.000	0.999	cr	1.011	0.15	13.90			1973	86213
		3.34			6.93	2.000	0.999	CT	1.018	0.14	13.20			1973	86213
		3.34			67.4	2.000	0.999	СŢ	1.011	0.19	15.70			1973	86213
		3.34			59.2	2.000	0.999	CT	1.008	0.15	14.60			1973	86213
		3.34			69.2	2.000	0.999	CT	1.011	0.15	14.30			1973	86213
***		1.37		•	61.8	1.000	0.500	CT.	0.488	0.40	20.70			1973	86213
T651	Plate	1.37	88	3.5	61.8	1.000	0.500	CT	0.503	0.49	23.00	22.1	1.2	1973	86213
		1.37			61.8	1.000	0.500	cT	0.499	0.47	0972			1973	86213

### **TABLE 7.14.2.2**

							V	LUM	INUM	ALUMINUM 2618 K _c	$\mathbf{K}_{\mathbf{c}}$								
	PROI	PRODUCT				SPECIMEN	MEN	CRACK	ICK GTH	GROSS STRESS	SS		Kapp			Кc			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Ksi)	WIDTH (In.)	THICK (in.) B	INIT (in.)	FINAL (in.) 2a,	ONSET (Kal)	MAX (Kel)	K (KelVin)	K	STAN	K _o (Kalvin)	K _o MEAN	BTAN	DATE	REFER
							BUCKLI	NG OF C	RACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRAI	NED							
		90:0			56.2	2.000	0.064	0.623	0.900	i	36.00	37.87*			49.09			1973	86213
T61	Sheet	0.06	R.T.	7.7	56.2	2.000	0.064	0.623	0.970	34.10	35.70	37.55*	1	1	51.80*	1	1	1973	86213
		0.06			56.2	2.000	0.064	0.622	0.890	32.70	35.70	37.55*			48.25*			1973	86213
		0.06	-		64.2	2.000	0.064	0.621	1.070	32.80	34.10	35.80*			54.12*			1973	86213
T61	Sheet	0.06	R.T.	Ţ.Ľ	54.2	2.000	0.064	0.622	0.900	ı	33.20	34.92*	i	ŀ	45.27*	ı	ı	1973	86213
		90.0			54.2	2.000	0.064	0.623	0.960	32.70	33.90	35.66*			48.76*			1973	86213

* NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

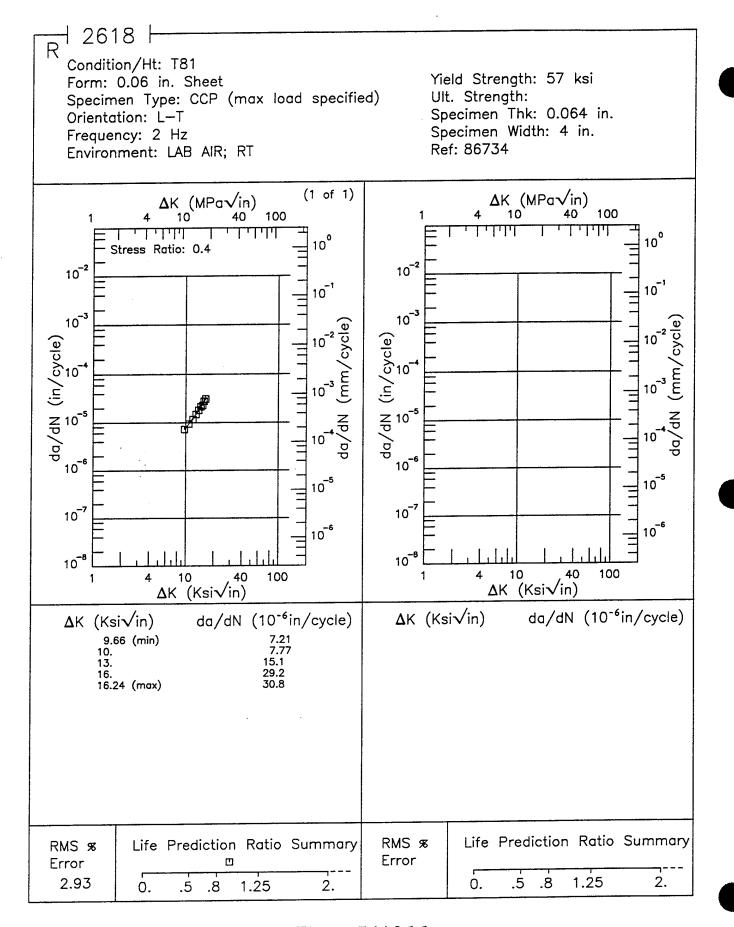


Figure 7.14.3.1.1

1 2618 <del>|</del>R

Condition/Ht: T81 Form: 0.06 in. Sheet

Specimen Type: CCP (max load specified)

Orientation: T-L Frequency: 2 Hz

Environment: LAB AIR; RT

Yield Strength: 57 ksi

Ult. Strength:

Specimen Thk: 0.064 in. Specimen Width: 4 in.

Ref: 86734

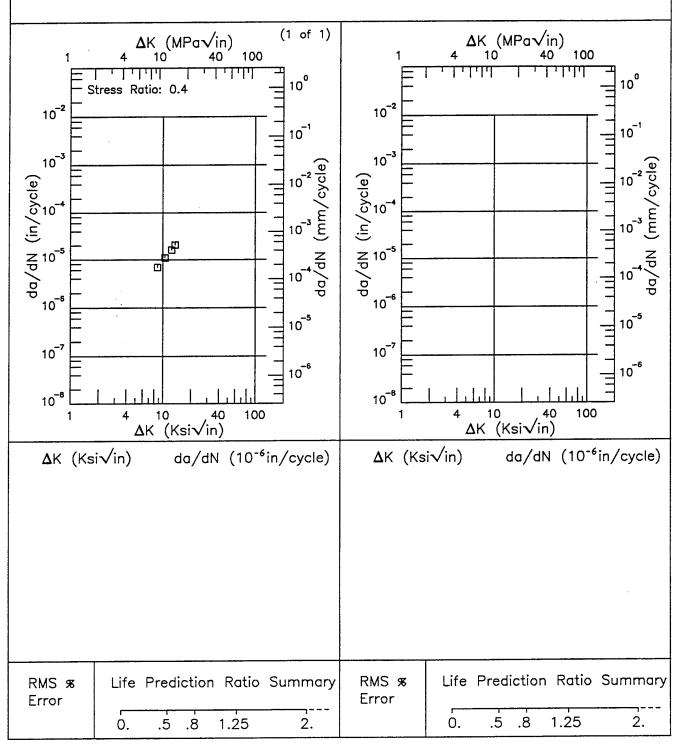


Figure 7.14.3.1.2

1 of 1

**TABLE 7.15.1.1** 

MEAN PLANE STRAIN FRACTURE TOUGHNESS FOR ALUMINUM 2000/6000 SERIES ALLOY 6061 AT ROOM TEMPERATURE

Product			<i>t</i>		$K_{Ic}$	$K_{Ic}~(ksi\sqrt{in})$	<u>1</u>			
Form	Condition/Heat Treatment			S	pecime	Specimen Orientation	ıtation			
			L-T			T-T			S-L	
		Mean K _{le}	Std Dev	Ę	Mean K _{ie}	Std Dev	u	Mean K _{te}	Std Dev	ц
Plate	T651	i	:	:	26.6	6.0	5	21.5	0.4	2

**TABLE 7.15.1.2** 

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK

100.0 50.0 FCGR (10° injeyele) ΔK Level (Ksiylin) 20.0 65.48 ENVIRONMENT: Lab Air 10.0 0.0 6061 AT ROOM TEMPERATURE 2.6 FREQ (Hz) 0.1 2 PRODUCT FORM PLATE ORIENTATION: L-T HEAT TREATMENT CONDITION/ T651

### **TABLE 7.15.2.1**

	,													1		_	T	_	_
		REFER	84288	84288	84288	82880	82880	82880	82880	84288	86688	86688	86213	86213	86213	86213	86213	86213	82675
		DATE	1971	1971	1971	1972	1972	1972	1972	1261	1973	1973	1973	1973	1973	1973	1973	1973	1972
		STAN		6				60				0.4		0.3		1		0.0	i
	K _{Io}	K. MEAN		30.1				26.6				21.5		21.3				24.3	1
		K. (Kai • √in.)	28.20	30.30	31.90	26.00	26.60	27.20	25.40	27.60	21.70	21.20	21.30	21.60	21.10	28.90	24.30	24.30	23.40
		2.0 (K _L ,TYB) ³ (in.)	96'0	1.10	1.20	0.90	0.94	0.98	0.86	1.01	0.68	0.62	0.72	0.74	0.71	1.29	0.91	16:0	96.0
Ic		LENGTH (fn.) A	1.500	1.450	1.510	1.025	1.018	0.995	1.443	1.508	0.951	0.930	1.171	1.181	1.183	1.547	0.987	0.956	1.000
6061 K _{Ic}	z	DESIGN	NB	CT	CT	CT	CT	CT	CT	CT	ст	NB							
	SPECIMEN	THICK (in.) B	1.480	1.480	1.480	1.000	1.000	1.000	1.480	1.480	1.000	1,000	1.250	1.250	1.251	1.500	1.000	1.001	1.000
ALUMINUM	-	WIDTH (in.)	3.000	3.000	3.000	2.000	2.000	2.000	3.000	3.000	2.000	2.000	2.500	2.500	2.490	3.000	2.000	2.000	2.000
		YIELD STR (Ksi)	45.5	45.5	45.5	43.4	43.4	43.4	43.4	43.4	41.5	41.5	39.6	39.6	39.6	40.3	40.3	40.3	38.1
		SPEC		T:L				T-L			5	7.6 1		3·L		T-I.		d-C	s-T
		TEST TEMP (F)		-112				R.T.			E	<u>:</u>		88		84		<b>.</b>	R.T.
	JCT	THICK (in.)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	2.50	2.50	3.00	3.00	3.00	:	ŀ	1	9:00
	PRODUCT	FORM		Plate				Plate			E	Jare		Plate		Forged Bar	Donney D	rorged Dar	Forging
		CONDITION		T651				T651			17651	1001		T651		T651	1906	1001	T652

#### **TABLE 7.15.2.2**

							[V	ALUMINUM	NUM	6061	K _c								
	PROI	PRODUCT				SPECIMEN	MEN	CRACK	CK TH	GROSS	SS SS		Карр			Жç			
CONDITION HEAT TREAT	FORM	THICK (in.)	TEMP (°F)	SPEC	STR (Kal)	WIDTH (In.)	THICK (in.)	INIT (fn.)	FINAL (in.)	ONSET (Kai) G	MAX (Kel)	K (Ket√in)	K. MEAN	STAN	K _o (Kel√in)	K _o MEAN	STAN DEV	DATE	REFER
							BUCKLIN	(G OF C	RACK ED	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRAI	INED							
		90.0		.,I	41.9	2.000	0.062	0.622	1.240	ı	28.50	29.98*			€3.05			1973	86213
		90.0			41.9	2.000	0.062	0.620	1.230	i	28.80	30.23			€3.09			1973	86213
ŀ	ä	90:0	£	Ł	41.9	2.000	0.062	0.619	1.360	1	28.40	29.76			69.80		,	1973	86213
9	Sueet	90:0	7. 	<u></u>	43.4	2.000	0.062	0.622	1.280	:	30.10	31.66	i	i	58.31*	ı	:	1973	86213
		90.0			43.4	2.000	0.062	0.622	1.300	ı	30.00	31.56			59.31*			1973	86213
		90.0			43.4	2.000	0.062	0.620	1.230	1	30.00	31.49*			55.30*			1973	86213
Ę	ž	0.12	Ę	E	44.1	4.000	0.127	1.590	2.864	;	26.70	46.85*			86.22*			1973	86213
07	198000	0.12	:	3	44.5	4.000	0.127	1.592	3.111	:	26.90	47.24*	i		101.60*		ı	1973	86213
		90.0		·	41.4	15.810	0.062	4.000	i	;	28.20	73.61						1973	86213
٤	10	90:0	E p	E -	41.4	15.810	0.062	3.020	4.230	i	32.00	71.31*			86.33*			1973	86213
2	and	90.0	į	<u> </u>	41.4	15.820	0.062	5.980	7.000	ı	21.60	72.72*	ı	i	81.73*	ŀ	I	1973	86213
		90.0			41.4	15.820	0.063	1.000	1.230	ı	39.10	49.13*			54.55*			1973	86213
		90.0			40.7	2.000	0.062	0.623	1.280	i	28.60	30.08			55.40*			1973	86213
		90.0			41.8	2.000	0.062	0.617	1.320	:	29.60	30.95			59.74*			1973	86213
٤	D P	90.0	£		41.8	2.000	0.062	0.622	1.130	;	29.80	31.36*			49.97			1973	86213
2	3810	90.0		:	41.8	2.000	0.062	0.621	1.100	ï	30.00	31.49*	ı	i	48.93*	i	1	1973	86213
		90.0			40.7	2.000	0.063	0.620	1.110	1	28.20	29.60			46.42*			1973	86213
		90.0			40.7	2.000	0.063	0.619	0.980	·	28.30	29.65*			41.43*			1973	86213

• NOTE: NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

## TABLE 7.15.2.2 (CONCLUDED)

							A	LUM	ALUMINUM	6061	$K_{\mathbf{c}}$								
1	TOTAL A	1	2		SF	ECI	SPECIMEN	CRACK	ICK GTH	GROSS	SS		Kapp			К _с			
FORM THICK (°F) OR (Kei) WIDTH (In.)	TEMP OR STR	SPEC STR OR (Kel)	STR (Kei)		WID (In.	Ħ C	THICK (in.) B	INIT (in.) 2a,	FINAL (in.) 2a,	ONSET (Kel) 0.	MAX (Kei)	K. (Ketvin)	K	STAN	K _e (Ket√in)	K, MEAN	STAN	DATE	REFER
							BUCKLI	NG OF C	RACK EI	BUCKLING OF CRACK EDGES NOT RESTRAINED	RESTRA	INED							
0.06 40.8 15.810	40.8				15.810		0.062	6.010	7.000	1	20.50	69.26			77.58*			1973	86213
0.06 p.r. r.r. 40.8 15.820	40.8	40.8	40.8	$\dashv$	15.820		0.062	1.000	1.650	1	37.40	46.99*			58.71*	_		1973	86213
0.06	40.8	40.8	40.8	$\dashv$	15.810		0.063	3.010	4.040	i	30.10	66.95*	i	ı	79.03*	i	1	1973	86213
0.06 40.8 15.820	40.8				15.820	ŀ	0.063	4.000	:	ı	27.00	70.48*			ŀ			1973	86213
0.25 a.m. 45.9 4.000	46.9	45.9	46.9	$\dashv$	4.00		0.250	1.730	3.171	,	25.80	48.22*			101.74*			1973	86213
0.25	45.9	46.9	45.9	-1	4.000		0.251	1.577	2.966	:	27.60	48.12*	ı	:	94.20*	i	I	1973	86213
0.50 Plate 1.77 44.1 4.000	44.1	44.1	44.1		4.000	$\overline{}$	0.503	1.600	:	13.40	28.90	50.94*						1973	86213
0.50	46.8	46.8	46.8		4.000		0.504	1.760	i	13.40	26.40	€0.01	!	1	ŀ	ŀ	!	1973	86213

• NOTE: NET SECTION STRESS EXCREDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STANDARD DEVIATION.

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H 6061 H Condition/Ht: T651 Yield Strength: 38 ksi Form: 1 in. Plate Ult. Strength: Specimen Type: NB - 3 pt Specimen Thk: 0.5 in. Orientation: L-T Specimen Width: 2.5 in. Stress Ratio: Ref: 81507 Environment: LAB AIR; RT (1 of 1)  $\Delta$ K (MPa $\sqrt{in}$ )  $\Delta$ K (MPa $\sqrt{in}$ ) 10 40 100 100 10 40  $\Gamma \Pi \Pi \Pi$ 11111 10° Frequency: 0.1 Hz 10⁻² 10-2 10-1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10⁻⁶ 10-6 10⁻⁵ 10 -5 10⁻⁷ 10⁻⁷ 10 -6 10 6 10⁻⁸ 10 8 10 40 100 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 11.89 (min) 13. 16. 20. 25. 30. 361. 35.46 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error .5 1.25 2. 9.98 8. 0. 0. .5 .8 1.25 2.

Figure 7.15.3.1

#### **TABLE 7.15.3.3**

K_{lsc} SUMMARY FOR ALUMINUM ALLOY 6061

	Refer	88700	88700	88700	88700	88700	86688	86688	86688	82675	82675
Ę	Date	1974	1974	1974	1974	1974	1973	1973	1973	1972	1972
Test	Time (min)	i	:	i	i	****	ŀ	:	ł	÷	;
	^R ieœ (Ksi√in)	<b>.8</b> 6	19.6+	16.4*	25+	19.7*	20	20	20	26+	24
	nq (Ksi√in)	**			1	ij	21.4	21.4	21.4	29.6	27.4
2	Crack (in)	:	-		ŀ	÷i.	1		1	1	ŀ
Prod	Thk (in)	0.12	0.12	0.12	0.12	0.12	2.5	2.5	2.5	9	6
1	Width (in)	1.3	1.3	1.3	1.3	1.3	2	2	2	1.4	2
Specimen	Design	WOL	WOL	TOM	MOL	TOM	CT	CT	CL	CANT	CANT
	Thick (in)	0.125	0.125	0.125	0.125	0.125	1	1	1	1.0	1
	Envir.	Aerozine 50	Aerozine 50/1% CO2	Matheson Coleman Bell 97% Hydrozine /3% H2O	Propellant Grade Hydrozine	Unsymmetrical Dimethyl Hydrozine	Industrial Atm	Salt-Dichromate. Acetato	Seacoast Atm	Seawater	Seawater
Yield	Str (Ksi)			!				41.6		35.3	38.1
	pec Or.			S.L				S-L			7-k
Test	Temp (°F)			R.T.				R.T.		£	곳 -:
	Form			w				Д		ţ	<b>1</b> 4
	Condition/ Heat Treat			T6				T651		i i	T.652

 $^{+}$  specimen thickness does not meet minimum requirements of  $2.5~(rac{K_{Loc}}{\sigma_{sr}})^{2}$ 

1 of 1

**TABLE 7.16.1.2** 

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK A201 AT ROOM TEMPERATURE

			100.0
	:te)	n)	20.0
Air	⁶ tr/cyc	(Ksiv/i	20.0
T: Lab	FCGR (10 ⁻⁶ in/cycle)	ΔK Level (Kst√lii)	2.86
NMEN	FC	V	5.0 0.31
ENVIRONMENT: Lab Air			0.2
ed ENVIR	FREG	(Hz)	25
	1	#	0.1
specified	PRODUCT	FORM	CASTING
ORIENTATION: Unspeci	CONDITION/	HEAT TREATMENT	T7

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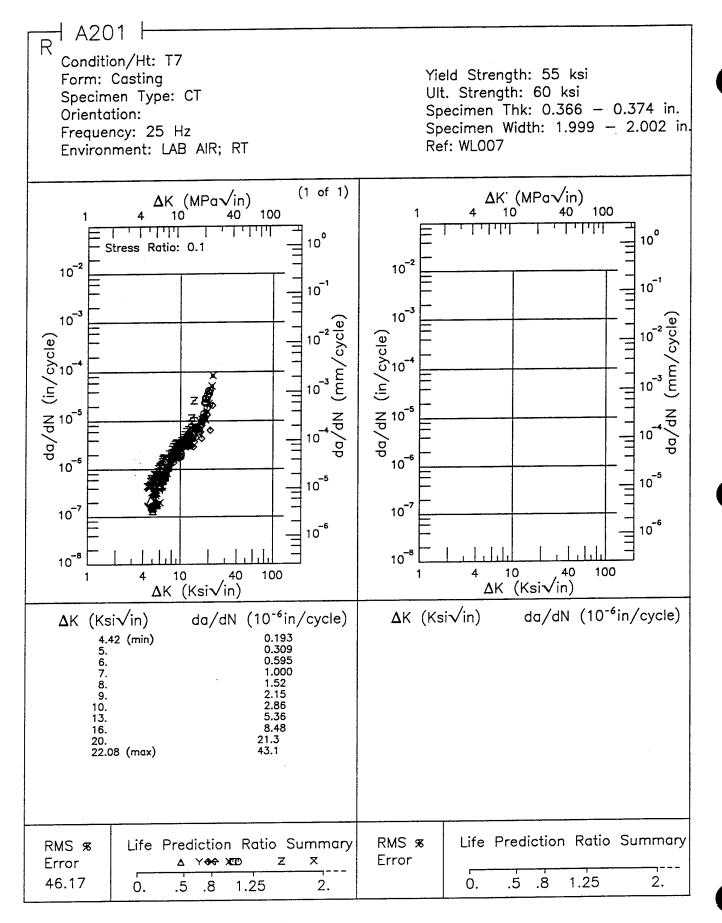


Figure 7.16.3.1.1

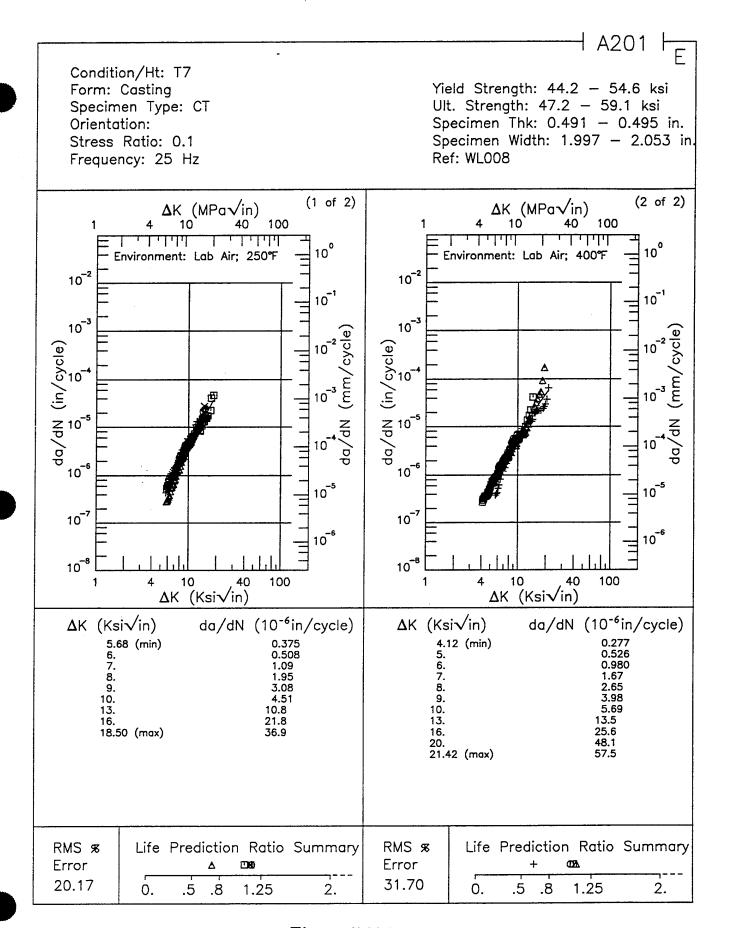


Figure 7.16.3.1.2

1 of 1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR  $\Delta K$  A357 AT ROOM TEMPERATURE

ORIENTATION: Unspecified

ENVIRONMENT: Lab Air

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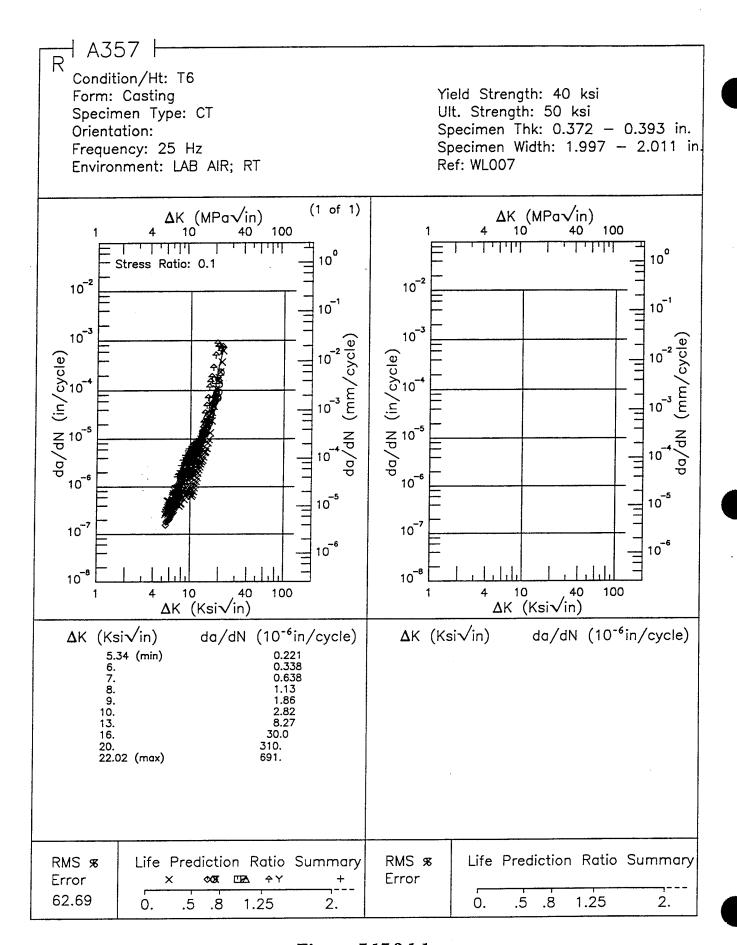


Figure 7.17.3.1.1

Yield Strength: 35.3 - 39.3 ksi Form: Casting Specimen Type: CT Ult. Strength: 35.8 - 43.3 ksi Specimen Thk: 0.468 - 0.474 in. Orientation: Specimen Width: 2.049 - 2.052 in. Stress Ratio: 0.1 Ref: WL008 Frequency: 25 Hz (1 of 2)(2 of 2)  $\Delta$ K (MPa $\sqrt{in}$ ) ΔK (MPa√in) 10 100 10 100 Lilili 1.1111 10° 10° Environment: Lab Air; 400°F Environment: Lab Air; 250°F 10-2 10-2 10 1 10-1 10⁻³ 10 -3 da/dN (in/cycle) da/dN (in/cycle) 10⁻³ 10 10⁻⁶ 10-6 10⁻⁵ 10 -5 10⁻⁷ 10⁻⁷ 10⁻⁶ 10 -6 10 8 10 8 10 40 100 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 6.12 (min) 7. 8. 4.27 (min) 5. 0.128 0.356 0.245 0.533 6. 7. 0.787 9. 10. 3.30 8. 9. 2.61 13. 3.80 16. 10. 18.40 (max) 756. 13. 68.1 203. 16. 19.00 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % ШO Error Error 84.69 32.54 .5 1.25 0. .5 .8 1.25 2. 0. .8 2.

Condition/Ht: T6

1 A357 ⊢

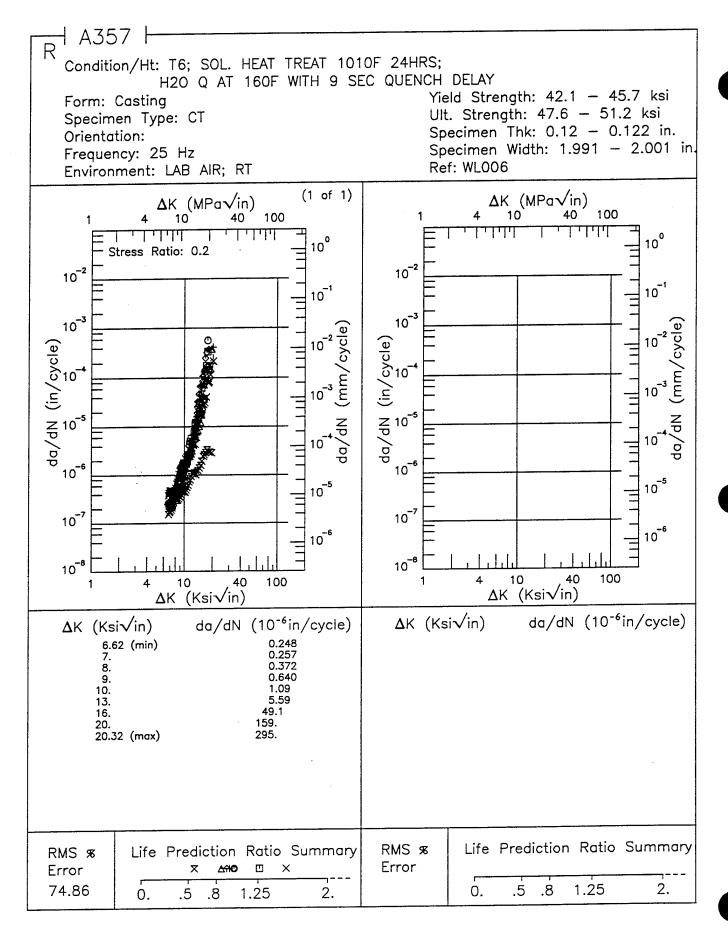


Figure 7.17.3.1.3

TABLE 7.18.1.2.1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK

1000 50.0 FCGR (10° injeyele) ΔK Level (Ksiv/in) 20.0 49.74 ENVIRONMENT: Lab Air 10.0 11.1 6.0 2.68 4.15 4.46 AL905XL AT ROOM TEMPERATURE 2.6 0.85 0.330.3 FREQ (Hz) 10 25 30 # 0.1 0.1 0.1 0.1 PRODUCT FORM FORGING ORIENTATION: L-T HEAT TREATMENT CONDITION! Unspecified

**TABLE 7.18.1.2.2** 

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK AL905XL AT ROOM TEMPERATURE

ORIENTATION: T.L

100.0 20.0 FCGR (10° injeyele) AK Level (Kstylin) 20.0 43.62 ENVIRONMENT: Lab Air 10.0 19.17 8.07 6.0 3.05 2.560.98 3.15 2,6 0.28 0.34 FREQ (Hz) 10 30 0.33 4 0.1 0.1 0.1 PRODUCT FORM FORGING HEAT TREATMENT CONDITION! Unspecified

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR  $\Delta K$  AL905XL AT ROOM TEMPERATURE

**ORIENTATION: S-T** 

ENVIRONMENT: Lab Air

CONDITION/	PRODITICE		FREG		EC	<i>GR</i> (10	ECGR (10- ⁶ in/cycle)	(9)	
HEAT TREATMENT	FORM	Ħ	(Hz)		V	K Level	ΔK Level (Ksiylin)	(	
				2.5	5.0	10.0	20.0	50.0	100.0
		0.1	10	0.31	2.96				
-		0.1	25	0.52	3.86	11.25			
Unspecified	FORGING	0.1	30		4.86				
		0.1			0.07	0.05	103.53		
		0.33			1.28	7.64			

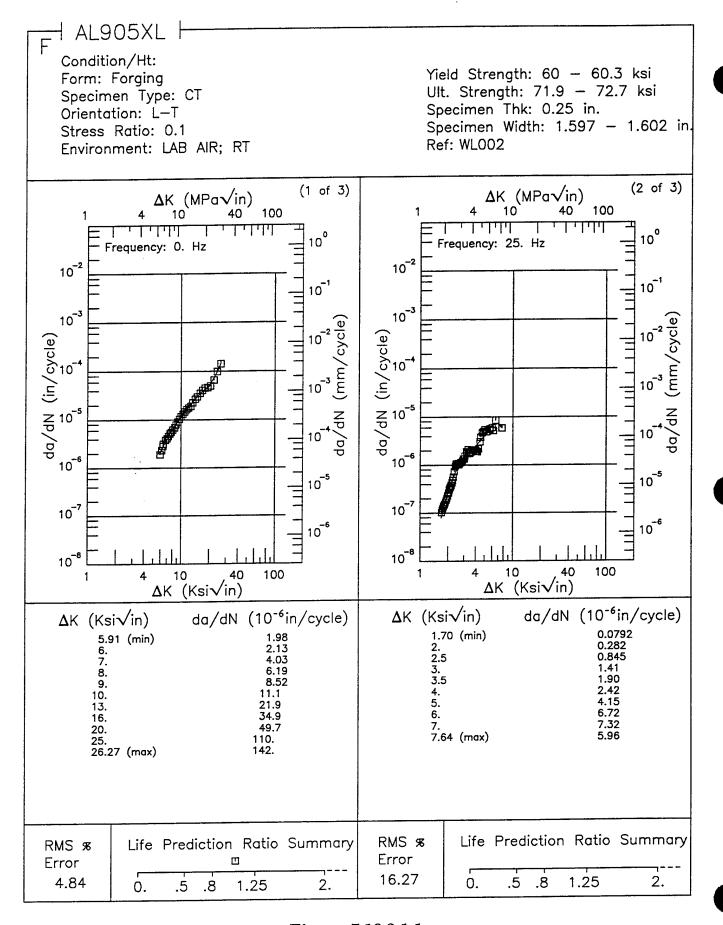


Figure 7.18.3.1.1

H AL905XL H Condition/Ht: Yield Strength: 60 - 60.3 ksi Form: Forging Ult. Strength: 71.9 - 72.7 ksi Specimen Type: CT Specimen Thk: 0.25 in. Orientation: L-T Specimen Width: 1.597 - 1.602 in Stress Ratio: 0.1 Ref: WL002 Environment: LAB AIR; RT (3 of 3) $\Delta$ K (MPa $\sqrt{in}$ )  $\Delta$ K (MPa $\sqrt{in}$ ) 100 10 40 100 10 40 11111 11111 10° 10° Frequency: 30. Hz 10-2 10-2 10⁻¹ 10-1 10⁻³ 10⁻³ da/dN (in/cycle) 10-6 10⁻⁶ 10 -5 10 -5 10⁻⁷ 10-7 10 6 10 6 10 8 10⁻⁸ 40 100 100 10 10 40 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 2.19 (min) 2.5 3. 4. 5. 6. 7. 8. 9.44 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error >100.0 1.25 2. 0. .5 .8 1.25 2. 0. .5 .8

Figure 7.18.3.1.1 (Concluded)

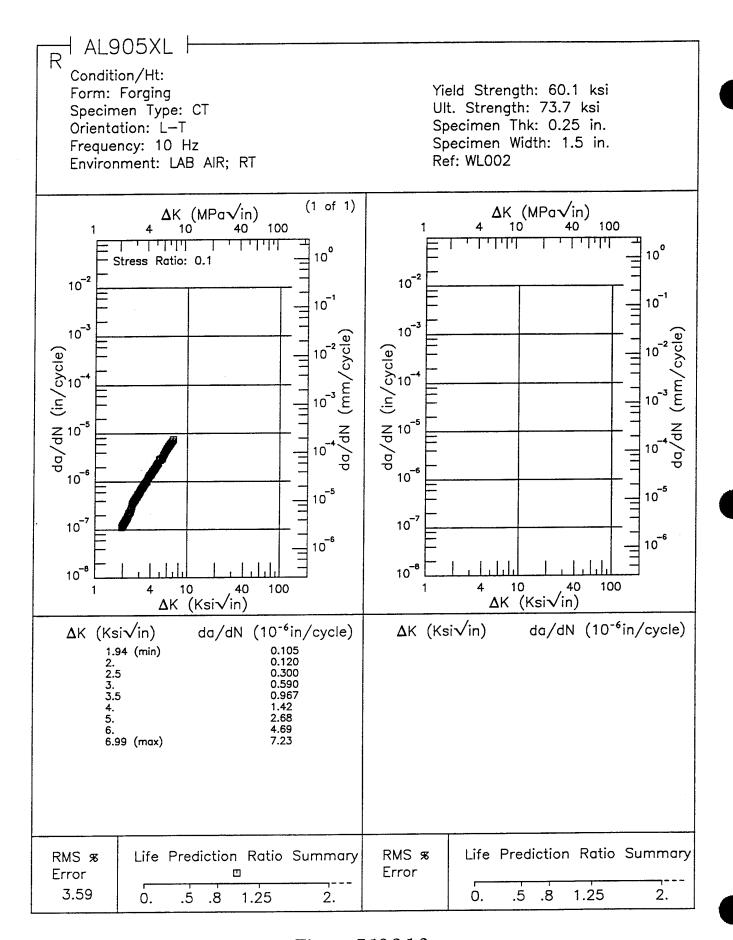


Figure 7.18.3.1.2

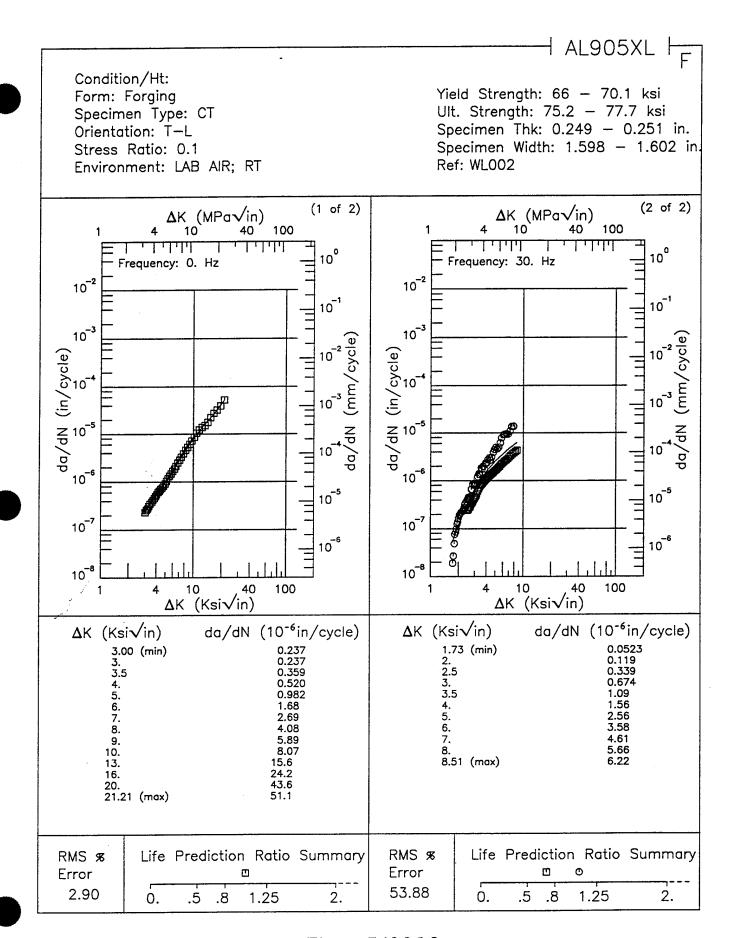


Figure 7.18.3.1.3

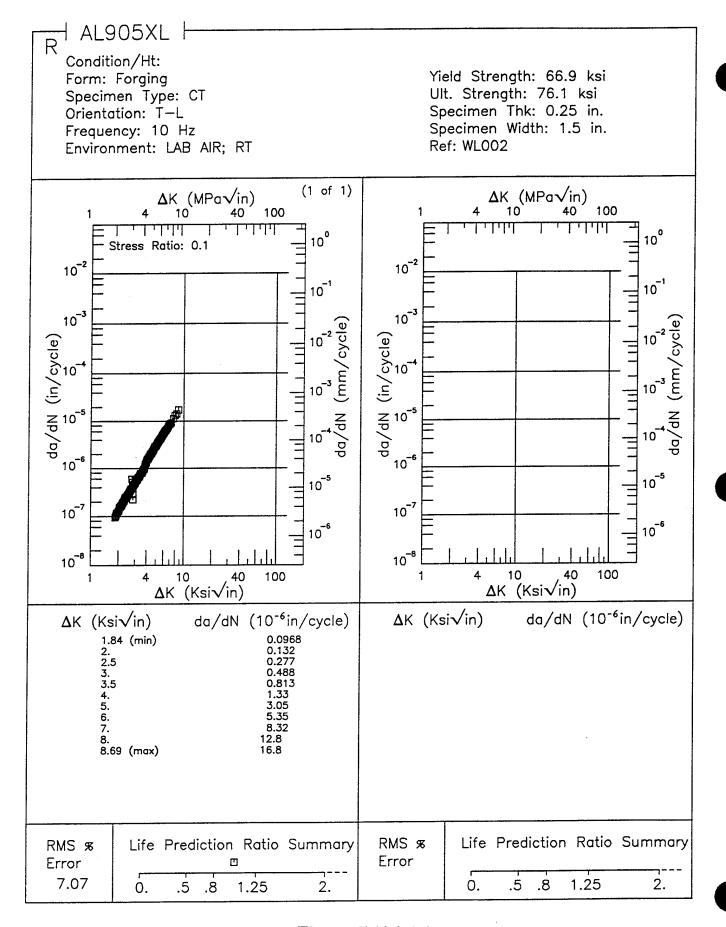


Figure 7.18.3.1.4

AL905XL R Condition/Ht: Yield Strength: 66 ksi Form: Forging Ult. Strength: 75.2 ksi Specimen Type: CT Orientation: T-L Specimen Thk: 0.25 in. Specimen Width: 1.6 in. Frequency: Ref: WL002 Environment: LAB AIR; RT (1 of 1)  $\Delta$ K (MPa $\sqrt{in}$ )  $\Delta K$  (MPa $\sqrt{in}$ ) 100 10 100 10 ויייי 10° 10° Stress Ratio: 0.33 10-2 10-2 10 1 10-1 10⁻³ 10⁻³ da/dN (in/cycle) da/dN (in/cycle) 10-3 10⁻⁶ 10-6 10 -5 10-5 10⁻⁷ 10-7 10⁻⁶ 10⁻⁶ 10⁻⁸ 10⁻⁸ 100 10 10 40 100 ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) **Δ**K (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) 2.98 (min) 3. 3.5 0.699 4. 5. 6. 7. 8. 9. 13. 16.06 (max) Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error ឭ 4.32 1.25 0. .5 .8 2. Ò. .5 1.25 2. .8

Figure 7.18.3.1.5

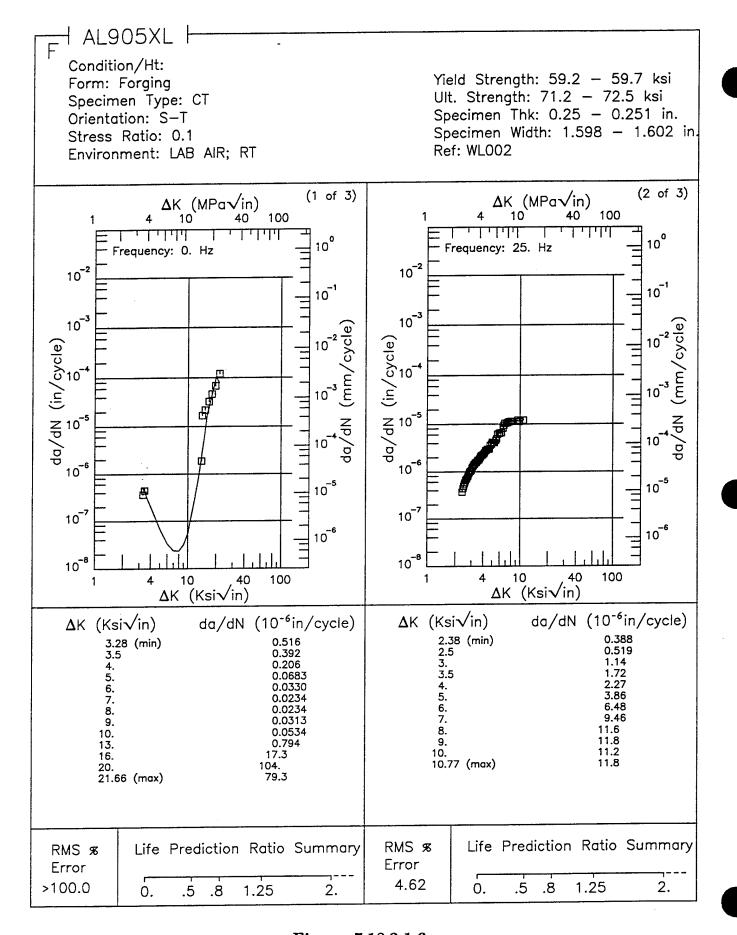


Figure 7.18.3.1.6

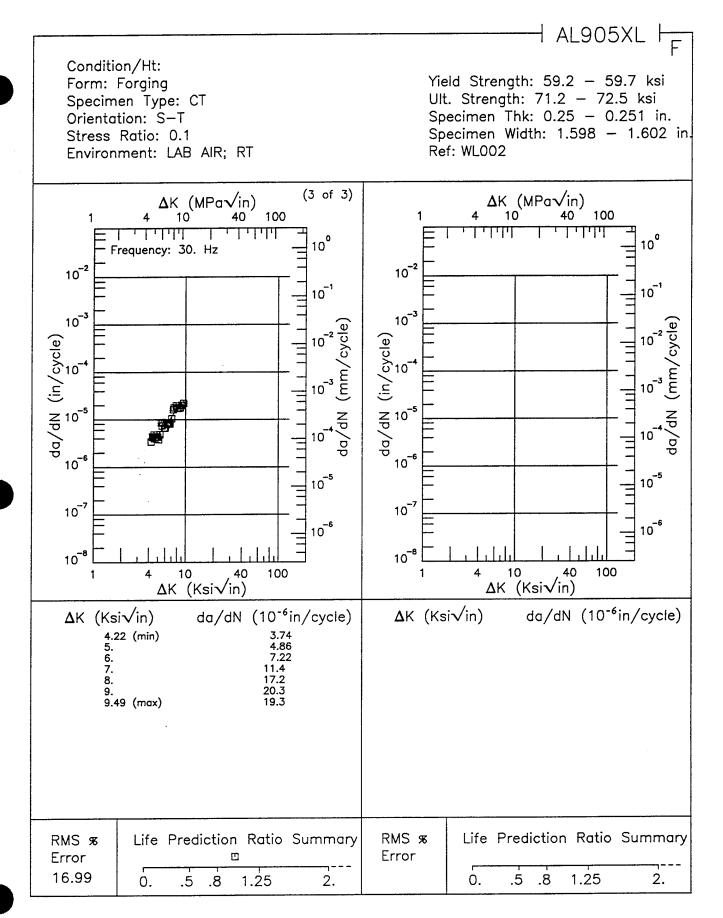


Figure 7.18.3.1.6 (Concluded)

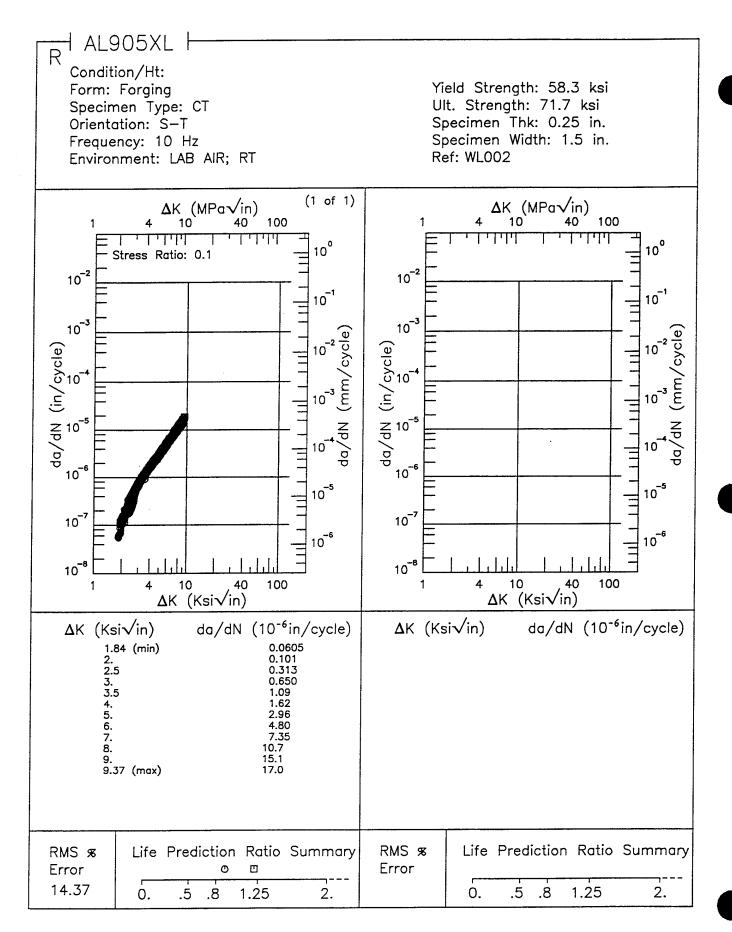


Figure 7.18.3.1.7

H AL905XL H Condition/Ht: Form: Forging Yield Strength: 59.7 ksi Ult. Strength: 71.2 ksi Specimen Type: CT Specimen Thk: 0.25 in. Orientation: S-T Specimen Width: 1.6 in. Frequency: Ref: WL002 Environment: LAB AIR; RT (1 of 1)  $\Delta$ K (MPa $\sqrt{in}$ )  $\Delta$ K (MPa $\sqrt{in}$ ) 10 100 10 100 40 1 1 1 1 1 1 1 10⁰ Stress Ratio: 0.33 10-2 10-2 10 1 10-1 10⁻³ 10⁻³ 10-2 da/dN (in/cycle) da/dN (in/cycle) 10⁻³ 10⁻⁶ 10-6 10⁻⁵ 10⁻⁵ 10 10⁻⁷ 10-6 10⁻⁶ 10⁻⁸ 10 8 100 10 40 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in)  $\Delta$ K (Ksi $\sqrt{in}$ )  $\Delta$ K (Ksi $\sqrt{in}$ ) da/dN (10⁻⁶in/cycle) da/dN (10⁻⁶in/cycle) 4.02 (min)
5.
6.
7.
8.
9.
10.
13. 0.703 1.28 18.83 (max) 105. Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 3.39 Ò. .5 1.25 2. 0. .5 .8 1.25 2. .8

Figure 7.18.3.1.8

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR  $\Delta K$  IN905XL AT ROOM TEMPERATURE

ORIENTATION: L-T	l: L-T		ENVIR	ENVIRONMENT: H.H.A.	l: H.H.A.	
				FCC	FCGR (10 * inlewele)	
CONDITION/	PRODUCT	FREQ	•			
HEAT TREATMENT	FORM	H (Hz)	-	ΔK	ΔK Level (Kstylin)	
			25	0'9	10.0 20.0 50.0	100.0
Unspecified	FORGING	0.1	0.24	1.98		

# FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR $\Delta K$ IN905XL AT ROOM TEMPERATURE

ORIENTATION: L-T

ENVIRONMENT: Lab Air

		100.0				
cle)	in)	50.0				
) - ⁶ injey	il (Ksiyli	20.0	82.03		268.45	
FCGR (10 * infeyele)	ΔK Level (Ksiγlin)	10.0		11.9	22	11.21
FC	7	6.0			3.54	1.33
		2.5	٠		:	0.32
FRED	(ZH)		3	8	1-15	1-20
	Ħ		0.1	0.1	0.02	0.02
PRODUCT	FORM			FORGING		FORGING
NOTITIONO	HEAT TREATMENT		850F 2HRS; 666F 2HRS; WARM H20 Q; 230F	24HRS		Unspecified

**TABLE 7.19.1.2.3** 

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK IN905XL AT ROOM TEMPERATURE

	0	
	1000	
	) 50.0	
H.H.A	CGR (10 ⁻⁶ infcycle  AK Level (Kstylin)  10.0   20.0	
NT: H	7GR (10 ⁻⁴ )  1	
ONME	FC 2	1.53
ENVIRONMENT: H.H.A.	2.5	0.25
<u>E</u>	FREQ (Hz)	
	R	0.1
	CT	
	RODUCT	FORGING
T-T	PR	F
ORIENTATION: T-L	T	
NTA	NEN MEN	
RIE	DITIC	Unspecified
	CONDITION/ HEAT TREATMENT	Una
	HEA	

### TABLE 7.19.1.2.4

# FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK IN905XL AT ROOM TEMPERATURE

ORIENTATION: T-L

ENVIRONMENT: Lab Air

CONDITION/ HEAT TREATMENT	PRODUCT	R	FREQ (Hz)		FC	GR (10 K Level	FCGR ( $10^{-6}$ in/cycle) $\Delta K$ Level (Kst $\sqrt{ln}$ )	9	
				2.5	6.0	10.0	20.0	50.0	100.0
850F 2HRS; 665F 2HRS; WARM H20 Q; 230F		0.1	9		3.69				
24HRS	FORGING	0.1	9			17.71	171.44		
		0.02	0.1-20	1.24	18.92				
Ouspecilled	FORGING	0.02	0.1-25	0.07	1.68	14.82	149.84		

TABLE 7.19.1.2.5

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF STRESS INTENSITY FACTOR AK IN905XL AT ROOM TEMPERATURE	ENVIRONMENT: H.H.A.	R FREQ ΔΚ Level (Ksiγlii)  ΔΚ Level (Ksiγlii)  2.5 5.0 10.0 50.0 1000	0.1 0.75 13.61 87.78
	ORIENTATION: S-L	PRODUCT	FORGING
		CONDITION/ HEAT TREATMENT	Unspecified

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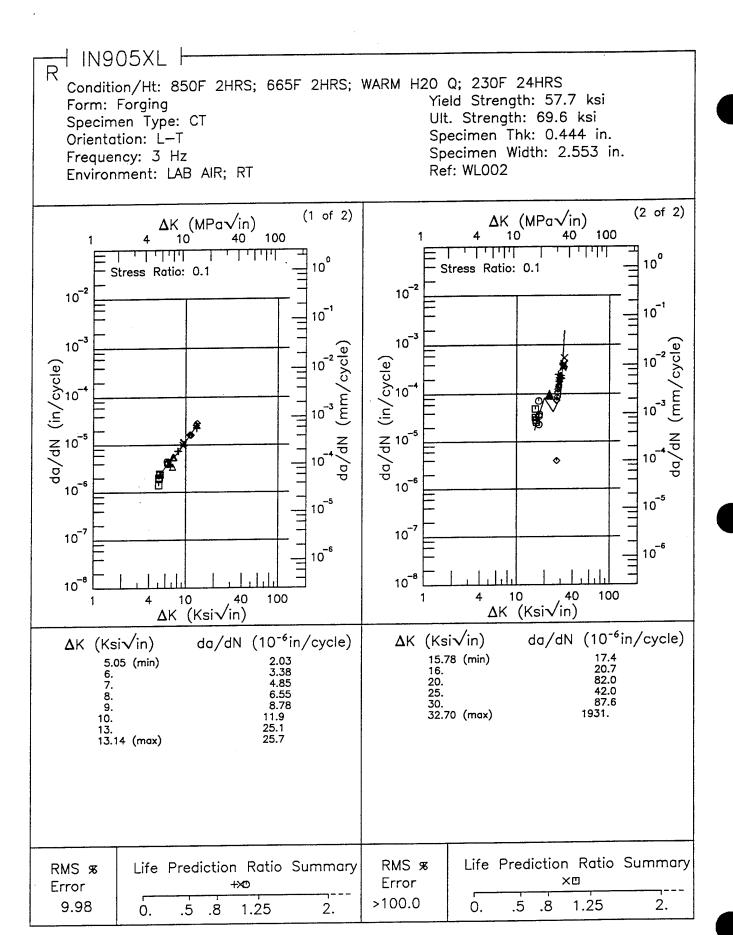


Figure 7.19.3.1.1

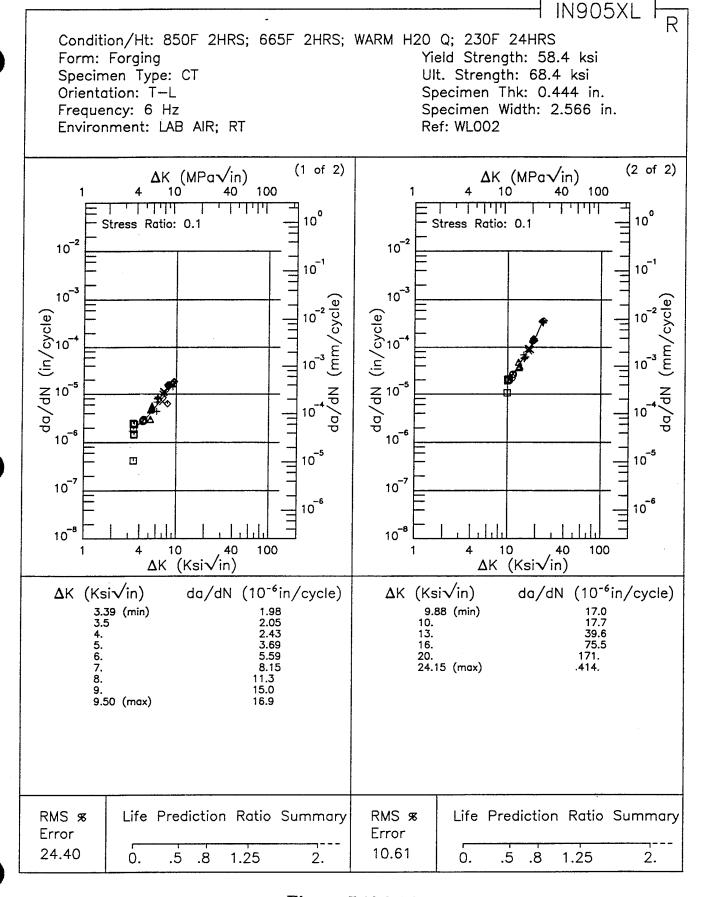


Figure 7.19.3.1.2

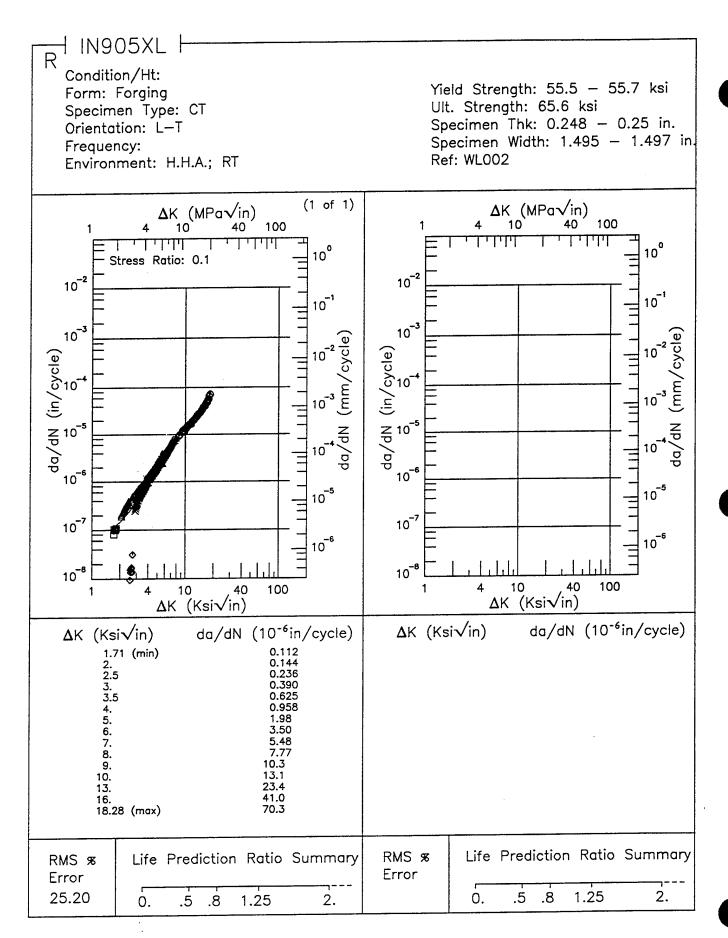


Figure 7.19.3.1.3

IN905XL R Condition/Ht: Yield Strength: 54.3 - 54.6 ksi Form: Forging Ult. Strength: 65.7 ksi Specimen Type: CT Specimen Thk: 0.25 in. Orientation: T-L Specimen Width: 1.493 - 1.497 in Frequency: Ref: WL002 Environment: H.H.A.; RT (1 of 1)  $\Delta$ K (MPa $\sqrt{in}$ )  $\Delta$ K (MPa $\sqrt{in}$ ) 10 100 10 40 100 LI LILII 10° 10° Stress Ratio: 0.1 10-2 10 -2 10-1 10-1 10⁻³ 10⁻³ 10²01/0/ da/dN (in/cycle) da/dN (in/cycle) 10 10⁻⁶ 10⁻⁶ 10⁻⁵ 10 5 10⁻⁷ 10-7 10-6 10 -6 10 8 10⁻⁸ 40 100 10 40 100 10 ΔK (Ksi√in) ΔK (Ksi√in) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) ΔK (Ksi√in) da/dN (10⁻⁶in/cycle) 2.02 (min) 2.5 3. 3.5 0.138 0.252 0.407 9. 9.97 (max) 12.1 Life Prediction Ratio Summary Life Prediction Ratio Summary RMS % RMS % Error Error 34.82 .5 1.25 2. .5 1.25 0. .8 0. .8 2.

Figure 7.19.3.1.4

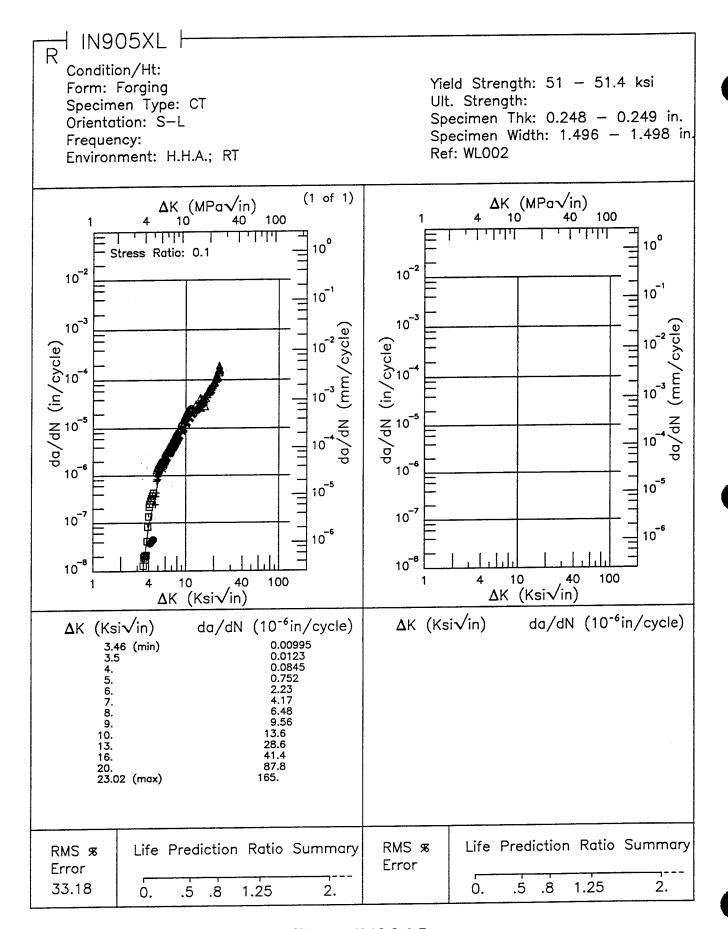


Figure 7.19.3.1.5

IN905XL R

Condition/Ht: Form: Forging

Specimen Type: WOL

Orientation: L-T

Frequency: 1 — 15 Hz Environment: LAB AIR; RT Yield Strength: 63.8 ksi Ult. Strength: 75 ksi Specimen Thk: 0.249 in. Specimen Width: 1.642 in.

Ref: WL002

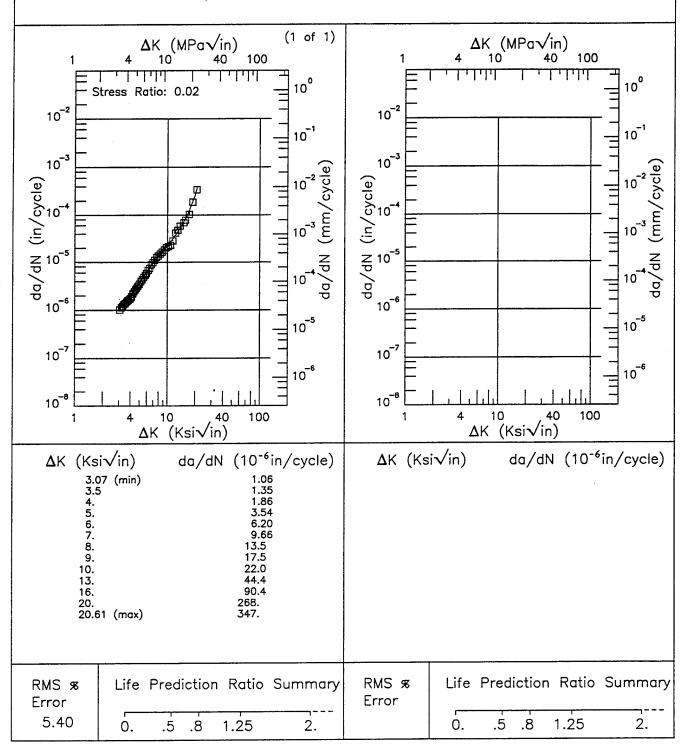


Figure 7.19.3.1.6

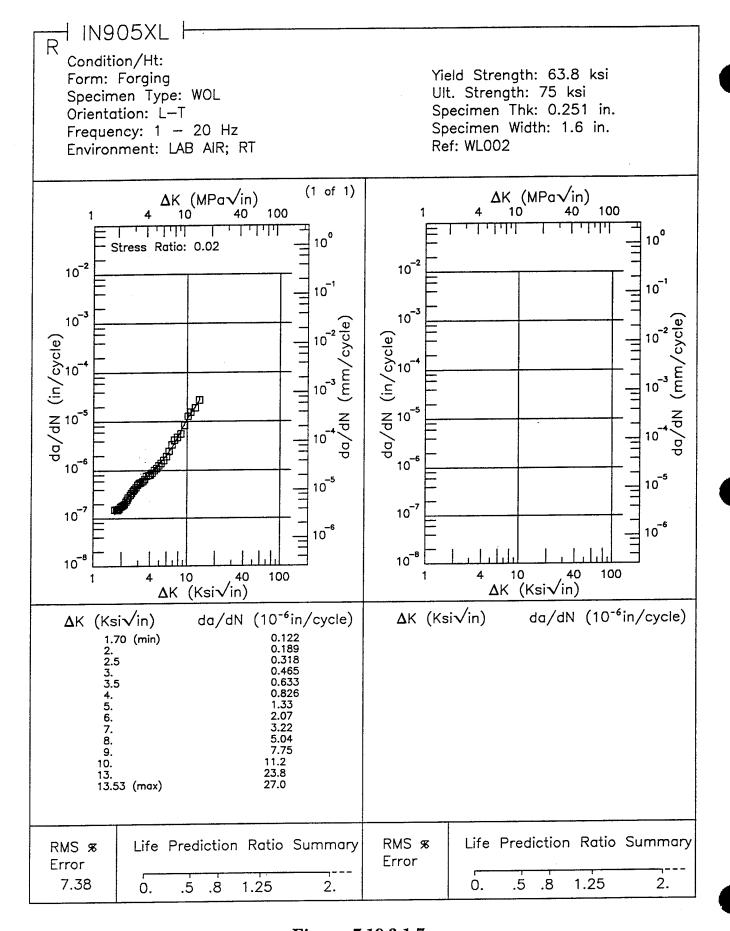


Figure 7.19.3.1.7

l IN905XL 片

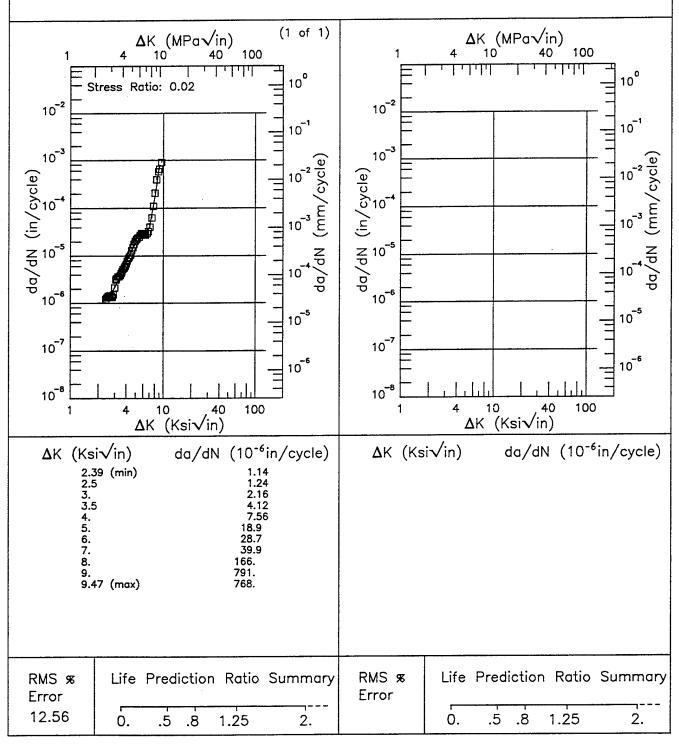
Condition/Ht: Form: Forging

Specimen Type: WOL

Orientation: T-L

Frequency: 0.1 - 20 Hz Environment: LAB AIR; RT Yield Strength: 64 ksi Ult. Strength: 74.5 ksi Specimen Thk: 0.248 in. Specimen Width: 1.998 in.

Ref: WL002



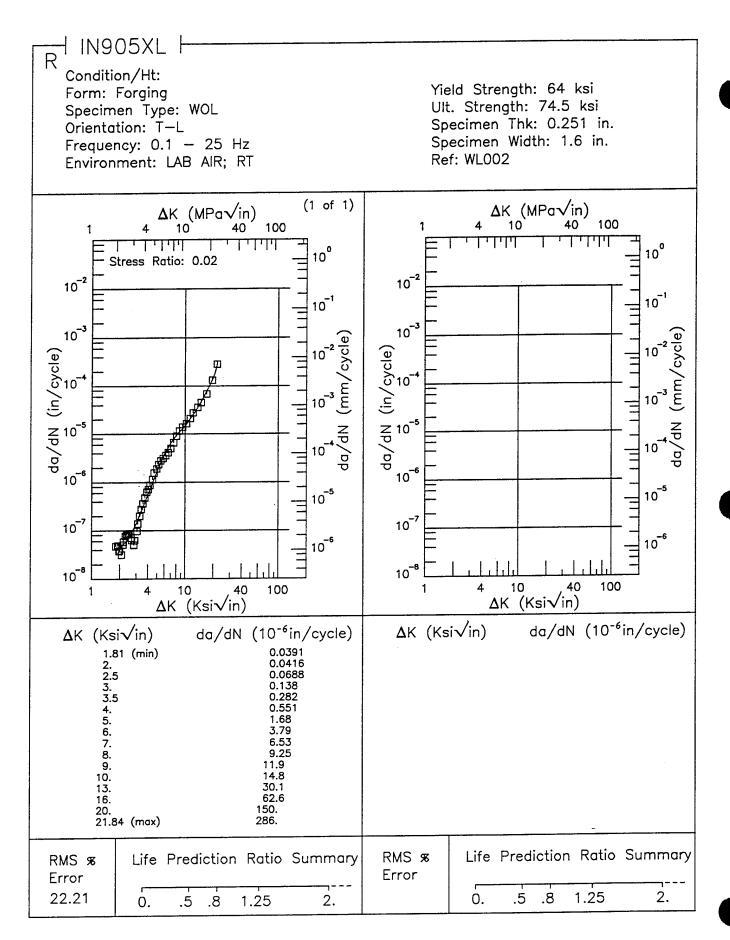


Figure 7.19.3.1.9

#### **TABLE 7.20**

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